# Pacific Viewpoint

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Published twice yearly by the Department of Geography, Victoria University of Wellington, New Zealand, and printed at the press of Wright and Carman Ltd., Wellington, New Zealand

*Editorial offices*: P.O. Box 196, Wellington

10s. ($1.50) a number £1 ($3) a volume

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# The Ceylon Ten-Year Plan, 1959-68

B. H. FARMER

CEYLON bears many of the marks of an underdeveloped country, though not so deeply nor so grievously as her great neighbour, India. Ceylon's annual income per capita in 1957 was said to be of the order of £38, about one-eighteenth that in the United States but nearly twice that in the Republic of India. Income per capita, although it may have risen until 1951 (apart from a break during the depression of the 1930s), during the last ten years has failed to rise at all markedly, and may even be declining. Nutritional standards are low: the intake of calories and protein per capita is not much more than half that in the United Kingdom. Some 53 per cent of the working population is engaged in agriculture, fisheries and forestry; but this proportion is, of course, much lower than the corresponding proportion in India. Moreover, the figure just quoted includes workers in tea, rubber and similar factories, who ought perhaps to be considered as industrial workers. As it is, 11 per cent of the work-force is recorded as engaged in industry, and a further 20 per cent in commerce.

Ceylon also resembles other underdeveloped countries in the relatively low technical levels of the indigenous peasant agriculture. But these levels are much higher than those in, say, Africa, for the basic agricultural technique is rice cultivation, which not only demands great skill but permits much higher yields per acre and per capita than African shifting cultivation. True, it used to be said that the yield of paddy-fields in Ceylon was only 14 bushels per acre, which put the country well towards the bottom of the list of rice producers. But sample surveys have shown that the true average yield in 1951 was 31 bushels per acre. This, besides being a forceful commentary on the unreliability of the earlier statistics, puts Ceylon on a par, roughly, with Java and Burma.

Ceylon is witnessing at the present time an explosive growth of population. The national total grew from 6,053,000 in 1931 to 9,375,000 in 1956; at the time of writing it is well over 10 million, and recent careful estimates suggest that it will double in the next twenty years. The consequences of this explosion represent the major problem before those who are responsible for economic affairs in Ceylon. How are these people to be fed, clothed, housed and employed at present levels of income, let alone at the higher levels that are so patently desirable?

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Ceylon's rate of capital formation at first sight appears high by the standards prevalent in underdeveloped countries: gross savings have been estimated as 13.9 per cent of national income for the period 1950-57. But a high proportion of these savings is spent on social welfare and in other ways that contribute little or nothing to economic growth. Mrs Robinson has, for example, calculated that not much more than 50 per cent of the money raised by Government loans is spent on projects that can be reckoned developmental.[1] The failure to apply capital productively is undoubtedly one of the main reasons for the present stagnation in the economy of Ceylon, and is connected not only with the dilemmas that face a democratically elected government in an underdeveloped and service-hungry country but also with a shortage of entrepreneurs. The traditional outlet for savings in Ceylon has been the land, and this is still so. Some investment in land has been and is growth-producing, and a significant part in the development of the tea and rubber industries, and an even greater part in the development of the coconut industry, has been undertaken by Ceylonese capital. But today little expansion into new land is possible, for reasons shortly to be given; and the tendency is for too high a proportion of savings to go into the purchase of already developed enterprises.

It will be readily seen from the preceding paragraphs that Ceylon, though quite clearly an underdeveloped country with many of the problems that go with underdevelopment, departs from norm in a number of respects: notably in its relatively high per capita income, non-agricultural work-force and rate of gross savings. These departures (with others that there is no space to mention) hinge on the large part played in the economy of Ceylon by the three great export crops, tea, rubber and coconuts. Whereas in such countries as India and Pakistan the production of export crops plays a comparatively small part in an overwhelmingly food-producing peasant economy, in Ceylon these crops dominate the economic scene, though not quite to the same extent as in Malaya. Thus while paddy growing, garden cultivation and other forms of peasant food production employed about 404,000 persons in 1946, the growing and processing of export crops employed 783,000 (half of them in the tea industry). These export crops are produced not only on foreign-owned plantations but also on plantations and small holdings owned by Ceylonese. For in Ceylon the cash motive and an export orientation have both permeated whole sectors of the economy in a way that makes nonsense of Myrdal's concept of plantations as foreign-owned "economic enclaves".[2] Almost the whole of the coconut acreage in Ceylon is owned by local people, and the position in the tea and rubber industries was recently as follows:

[1] Robinson (1959).
[2] Myrdal (1957): 53, 58-9.

| Category of Ownership | Percentage of Acreage | |
|---|---|---|
| | Tea | Rubber |
| Sterling companies | 35.4 | 13.7 |
| Non-Ceylonese individuals | 9.7 | 2.5 |
| Rupee companies | 16.8 | 13.2 |
| Ceylonese individuals | 38.1 | 70.6 |

Not all shareholders in "sterling companies", i.e., companies registered in London, are necessarily non-Ceylonese; and not all shareholders in "rupee companies", i.e., companies registered in Colombo, are necessarily Ceylonese. But the figures at least give some idea of the present division of ownership, and give the lie to Myrdal's notion of an enclave.

It can in fact be demonstrated that the production of tea, rubber and coconut is not only responsible for raising the average per capita income, for producing most of the island's gross savings, and for employing most of those engaged in commerce and a high proportion of those employed in industry; the three commodities also provide 90 per cent of Ceylon's exports by value and give a figure for foreign trade per capita totally unrepresentative of an underdeveloped country. Moreover, the needs of the export crop industries have had much to do with the fairly liberal provision in the appropriate areas of roads and railways and for the introduction into Ceylon of banks, insurance companies and other forms of economic institution. But there is another side to the penny: on it is written undue reliance on those commodities and uneven development with the country.

Whatever may be said about peasant food production, technical levels on the best plantations are very high indeed, and are ably supported by Research Institutes, one for each of the three main crops. But not all estates by any means match up to the level of the best, and yields of export crops on small-holdings are generally low.

A final facet of Ceylon's present economy is one that is of great interest to the geographer and ought to be of great interest to the economist. To anyone unfamiliar with the tremendous contrasts in climate that are to be found in suitably disposed tropical islands, the firmness of the reality behind the conventional division of Ceylon into a "Wet Zone" and a "Dry Zone" will not readily be appreciated. The facts, briefly, are these. The Wet Zone of Ceylon covers, roughly, the south-western quadrant of the island (Fig. 1) and rises from a green palm-fringed coast into the central highland mass (Fig. 2). Here rain falls at all seasons, though not evenly throughout the year. The Dry Zone covers most of the rest of Ceylon, perhaps two-thirds of its total area. In most years there is here an abundance of rain from the north-east monsoon between, roughly, November and February: though in occasional years the rains fail. But during the south-west monsoon, from about May to about September, there is a hot, searing, dry season, when rain rarely falls, when shallow-rooted crops fail unless irrigated, and when rivers dry up and become a chain of shallow

pools.[3] The situation in the Dry Zone is made worse by other natural factors, notably the absence or rarity of underground water over most of its area; where the Ceylon Minister of Lands thinks he will find the water for the tube wells he has recently said he will sink is a mystery hidden from the present author.

The bearing of these geographical facts on economic development is that tea, rubber and other economically useful crops need rain at all seasons, and are therefore confined to the Wet Zone (Fig. 1). Since almost all Wet Zone land is either cultivated already, or is too steep, too rocky, too high, or too eroded to be cultivated, there is but little hope of any very considerable extension of the area under tea, rubber or other moisture-loving crops. The case with coconut is rather different. Coconut, it is true, is also moisture-loving, but it is possible to grow it successfully in the Dry Zone where, for various reasons, there is perennial fresh water at no great depth. This means, over most of the Dry Zone, a site where perennial surface water maintains the level of underground water throughout the dry season; which in turn means a site near one of the perennial rivers, or near an irrigation reservoir ("tank") or channel, or near a fresh water coastal lagoon like those of the east coast. Areas over which one or other of these conditions is satisfied are relatively rare, as Government settlement planners ignorant of the simple rules of Dry Zone physical geography have discovered to their peasant victims' cost.[4]

Because of the hostility of the Dry Zone to the money-spinning commercial crops, and because of the prevalence in it before the era of DDT spraying of endemic malaria (itself related to climate), the Dry Zone, outside a few coastal patches of coconut, has remained unaffected by either plantations or by peasant imitation of plantations. In spite of efforts to colonise it during the past thirty years or so, wide expanses of it still remain sparsely peopled, and almost roadless. This contrasts most sharply with the cultivated, densely peopled, well-linked Wet Zone. The contrast between the two Zones cannot be neglected, except at the country's peril, by he who would plan Ceylon's economic future.

## EARLY EFFORTS TO DEVELOP CEYLON

The clear implication of what has so far been said is that Ceylon, while underdeveloped, is certainly not undeveloped, though economic development is most unevenly distributed over the face of the island. It has moved a long way from Rostow's traditional static society (though some remote Dry Zone villages, clustered under their coconuts and relying on the products of their irrigated paddy-fields and of their

[3] Farmer (1956).
[4] Farmer (1957): 249-55.

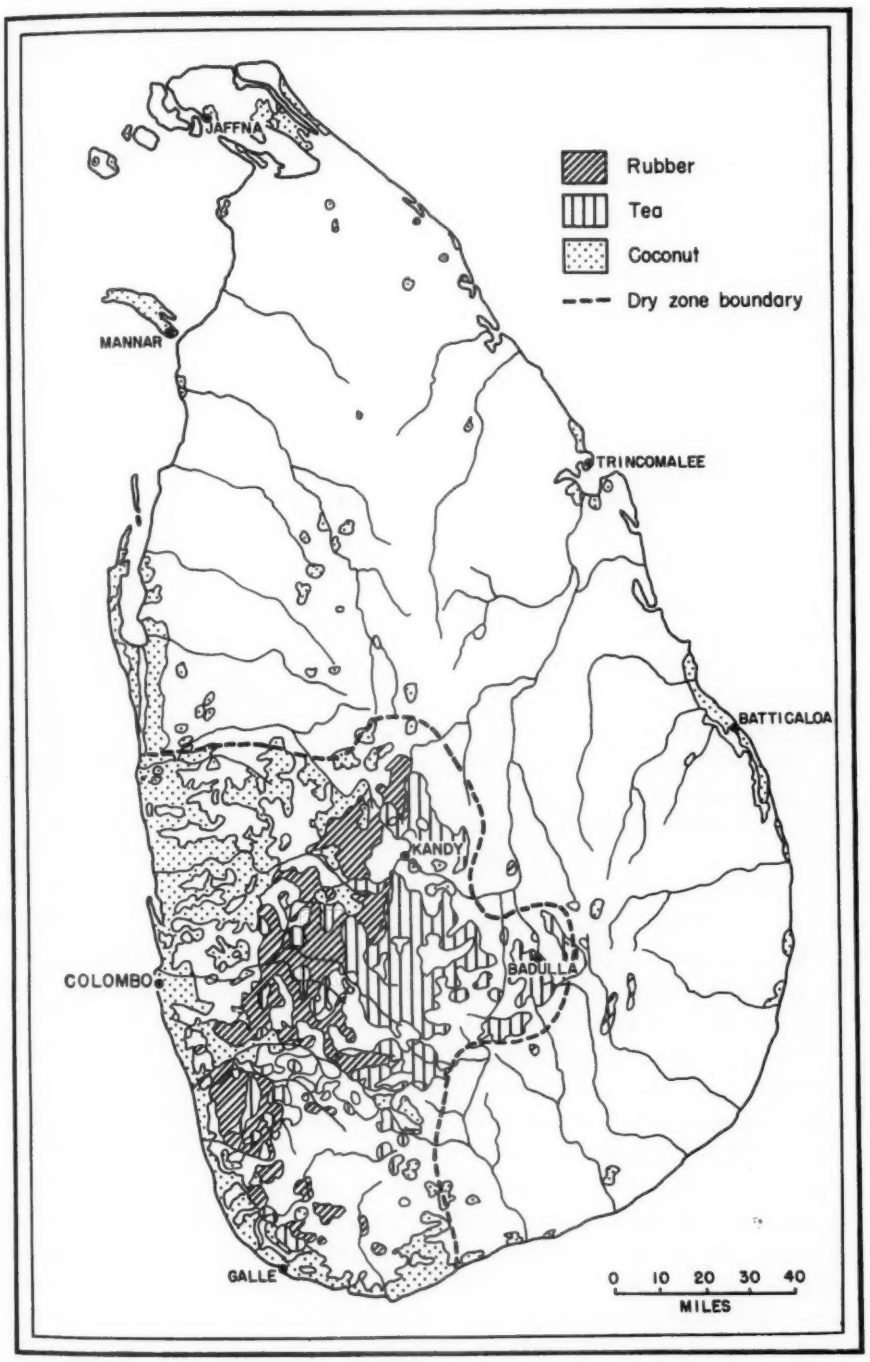


Fig. 1. Ceylon: distribution of major cash crops. Note concentration in Wet Zone of South-west.

patches under shifting cultivation, have not travelled very far thence).[5] Clearly, too, much of the effort that has produced this state of affairs is the product of private enterprise on the part of traders and of plantation owners and their peasant imitators. Government initiative has not, however, been lacking. During the latter half of the nineteenth century, and later, roads and railways were built, and a start was made on the restoration of the ancient irrigation works in the Dry Zone. After Ceylon won internal self-government in 1931, Dry Zone irrigation work received a further fillip, and a start was made with Government-organised colonisation, again mainly in the empty spaces of the Dry Zone.[6] But little or none of this work can be called economic planning. Amongst other things, the concepts behind the effort were purely static ones: to provide the peasantry with more land on which to maintain and reproduce its social character (or what was thought to be its social character), and to grow food, not to provide a fillip to increased productivity and economic growth. Indeed, the form of tenure imposed on the colonists was such that one does not need to be a cynic to regard it as a device to inhibit economic growth at all costs.[7]

In 1954 the Ceylon Government produced a "Six-Year Programme of Investment" which envisaged a number of lines of development: for example, industrialisation and diversification of agricultural production as well as Dry Zone colonisation. But on the whole the document was not much more than a collection of separate departmental estimates and aspirations. There was little underlying grand strategy, and little obvious reflection of current theory about the development of under-developed countries, worthy as many of the projects were in isolation.

## THE TEN YEAR PLAN, 1959-68

The preface to the recently published Ten-Year Plan is thus perfectly justified in claiming that it aims to provide "for the first time a comprehensive plan of development for the Ceylon economy covering both the public and the private sectors" and that "it not only presents programmes of development for the several important spheres of the economy, but also brings them together to form a balanced and co-ordinated whole."[8] The plan is divided into two parts: Part I deals with the economy of Ceylon as a whole, while in Part II a detailed analysis is made of the plans for the several sectors of the economy such as those concerned with export crops (wisely put first), domestic agriculture, fisheries, large- and small-scale industry, power, transport and social services. The whole forms a long document of close on five hundred pages; but one does not need to be an enthusiast for Ceylon affairs to be

[5] Rostow (1960). See also Leach (1961).
[6] Farmer (1957): Chapters 5-7.
[7] *Report of the Land Commission* (1958), and Farmer (1960).
[8] *Ten-Year Plan* (1959): iii.

fascinated by it, for as plans go this one is exceptionally well written, well integrated and cogently argued.

One is also impressed with the amount of preparatory work that has gone into the plan. Ceylon has had the benefit here not only of the work of a distinguished home team but also of eminent visitors; a good deal of the preliminary work has fortunately been published.[9] Some years ago, too, the World Bank sent a team to Ceylon.[10]

The authors of the plan are also to be congratulated for their insistence that their proposals must not be interpreted rigidly, but with flexibility, as events unfold during the decade to which it applies; and for the way in which they explicitly invite comments on their handiwork. *Si sic omnes!*

The Ceylon planners have clearly had in the forefront of their minds the explosive growth of population that has already been mentioned and the consequently inevitable growth in the national work-force. They rightly reject the easy and optimistic view, often expressed in Ceylon as in other undeveloped countries, that Western experience will be duplicated and that the current fall in death rates will be followed, as economic and social changes take place, by a fall in the birth rate; so that, in the not very long run, all will be well. They point out forcefully not only that the fall in the death rate in Ceylon has been much more rapid than that which affected Western countries but that this fall is taking place without the changes in economic and agrarian structure which encouraged, if they did not cause a fall in the birth rate in the West.

Moreover, the very rate of population increase is in itself a burden to economic development: for "population growth by itself tends to increase current consumption since an increasing volume of output has to be devoted each year to feeding and clothing the additional numbers", thus necessarily diminishing the possibilities for the saving so vital to economic growth;[11] while at the same time what is available for investment tends to be spent disproportionately on the social needs of a rising population, in the way of schools, houses, and so on.

All of this is, no doubt, very familiar to many. But in a country given to an easy and lotus-eating optimism the planners deserve praise for making it so abundantly clear that these dark demographic considerations have overshadowed all of their work.

Given the demographic context and its obvious economic and social implications it is not surprising that something has to be said about family planning and the possibility of educating public opinion to the

[9] See Selvaratnam (1959); Sundrum, Rao and Selvaratnam (1959); *Reports of Committees and Technical Working Groups* (1959); and *Papers by Visiting Economists* (1959).

[10] See *Economic Development of Ceylon* (1953).

[11] *Ten-Year Plan* (1959): 15.

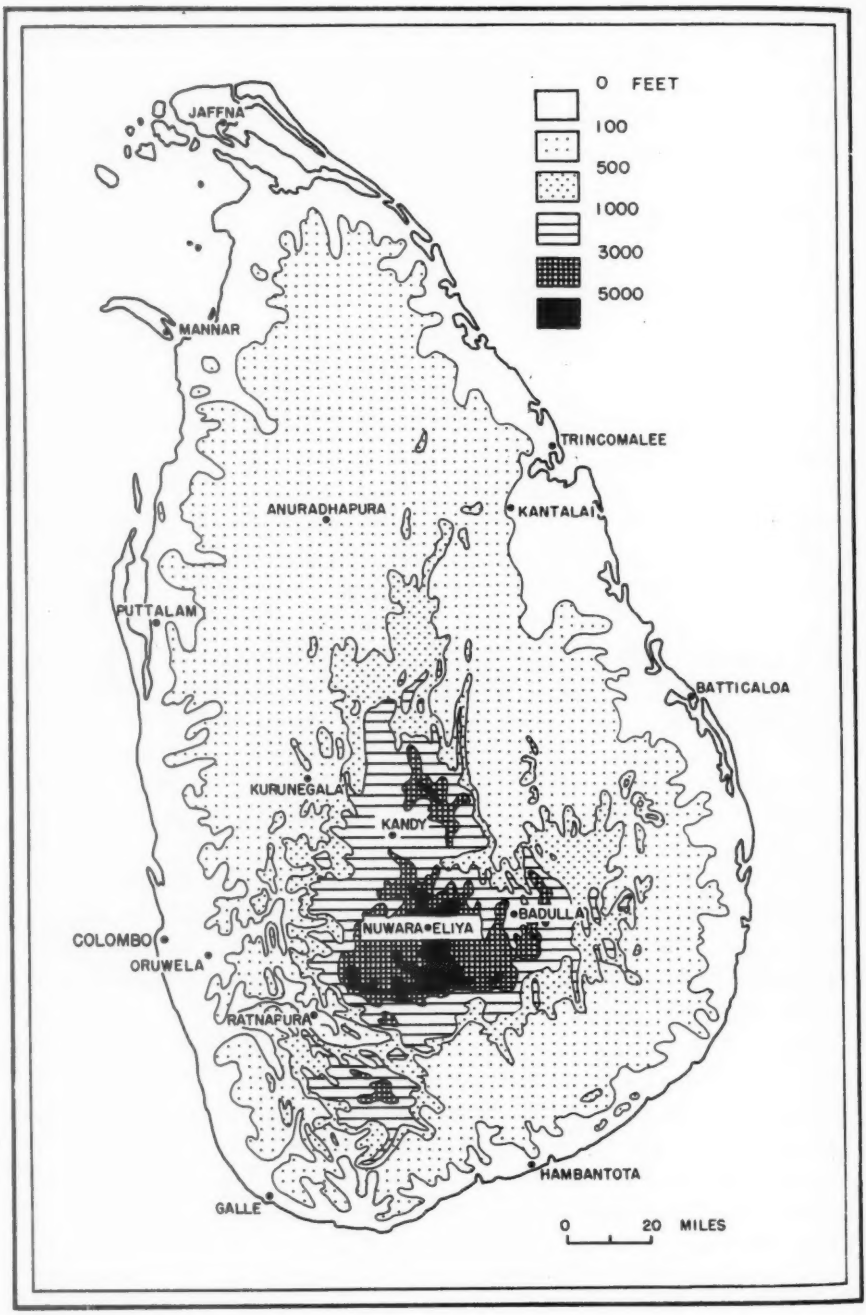


Fig. 2. Ceylon: Relief features.

population problem.[12] It is not surprising, also, that calculations about the future size of the work-force and estimates of the labour absorptive capacity of various forms of economic activity penetrate many sections of the Ten-Year Plan, and that employment is put first among objectives. These are:

"(a) That the plan should aim both at providing employment for the increase in the work-force and at bringing about a certain reduction in existing unemployment and under-employment;
(b) That the plan should as far as possible aim at equilibrium in the balance of payments on current account or at least a limited deficit capable of being compensated for by borrowing and by grants from abroad;
(c) That the plan should aim in the long run at raising the standard of living since this is the ultimate purpose of economic development;
(d) That the plan should provide for the diversification of the economy so as to make it less vulnerable to external changes;
(e) Last, but not least, that the plan should provide for an equitable distribution of national income. . . ."[13]

(so far as objective (c) is concerned, the plan aims at a 17 per cent increase in per capita consumption by 1968.)

If Ceylon's Ten-Year Plan is overshadowed by projections of future population and future work-force, it is also conceived on certain assumptions about other aspects of the external and internal situation. These are:

(1) That during the ten-year period in question there will be no serious international depression;
(2) That the terms of trade will on average be equal to those of 1957;
(3) That outside technical and financial assistance will be forthcoming in sufficient degree;
(4) That the financial and monetary policy of the Government will be geared to the implementation of the plan;
(5) That defence commitments will impose relatively little strain on resources;
(6) That the determined efforts of both Government and people will be forthcoming.[14]

It is possible to conceive that assumptions 1 and 5 are perfectly reasonable (though if communal tension in Ceylon is not eased by some statesmanlike compromise the state of emergency unfortunately prevailing at the time of writing may well be recurrent, in which case Ceylon's internal, rather than its external security may call forth

[12] *Ten-Year Plan* (1959): 16-18.
[13] *Ten-Year Plan* (1959): 60.
[14] *Ten-Year Plan* (1959): 59-60.

expenditure on defence). But it is also not unreasonable to express the view that the remaining assumptions bear the stamp, to greater or lesser degree, of the national failing of optimism. For there seems to be a general set in the terms of trade against primary producers, quite apart from the fact that tea, rubber and coconuts are particularly liable to competition, or to inelasticities of the market, or both; technical and financial assistance from outside will depend on external political factors as well as on political stability in Ceylon, a very doubtful matter; while neither determination to put the plan into action nor hard thinking about it and its implications seem at present to mark the Government and people of Ceylon, with the honourable exception of a number of individuals.

If, however, it is possible to see some of the assumptions underlying the Ceylon Ten-Year Plan as more or less optimistic, it seems that the plan's broad strategy is essentially a sound one. From a quick preliminary survey of the present position and future potential of the island's agriculture, the planners reach the conclusion that:

> "Whatever possibilities still remain in the field of agriculture, it will not afford a permanent outlet for the growing population. Once these possibilities have been exploited to the full there will be no alternative but to develop other avenues of productive employment. In fact these avenues will need to be developed before that date. For even in the earlier phase, the rate of expansion in agricultural employment may well fall short of the rate of expansion in the total work-force."[15]

There can be no doubt at all of the essential accuracy of this judgment, especially if one recognises the high degree of under-employment already in existence in the peasant sector, the great shortage of land in the Wet Zone, and the difficulties and limitations of Dry Zone development.

## THE STRATEGY OF DEVELOPMENT

The planners, it will be noted, do not leap headlong into schemes for industrialisation—nor when they eventually and inevitably arrive at such schemes—do they consider them uncritically. Their strategy, broadly, is to achieve progressive and cumulative industrialisation, not by first building up a heavy industry to produce capital goods, but rather by importing these goods. The foreign exchange wherewith to purchase them is to come from an increase in agricultural exports (this in turn involving an expansion of tea, rubber and coconut production), and from reductions of imports of food and consumer goods brought about by increased home production of these commodities.

The case for the development of alternatives to agricultural production (and in practice this means manufacturing industry) is clear from whatever angle one approaches the problem: the limitations on agricultural expansion, the need to get people off the already overcrowded peasant holdings, the dependence of rising living standards on consumer

[15] *Ten-Year Plan* (1959): 26.

goods, the need for forms of production more formative of capital than agriculture, the independence or near-independence of many forms of industry of any single fixed factor like land in agriculture. One of the difficulties is that the creation of industry on the Western model is not particularly labour absorptive. The Ceylon planners have, however, faced this problem, and they envisage what they call "a vigorous supplementary programme for the expansion of small-scale and cottage industries", since these industries are likely to employ relatively large numbers at relatively little capital cost.[16] They also see a vital role for community development and rural self-help, which also serves to use abundant labour rather than scarce capital.

It can also readily be seen that the Ceylon planners have been wise to listen neither to the calls of prestige nor to the tenets of Marxist mythology, and to reject heavy industry as a pre-requisite to industrial development. For Ceylon has no coal nor oil (and cannot have them, given its geological structure); its sources of iron ore, though substantial (they have been estimated at six million tons), are badly scattered and may be difficult of utilisation; and the internal market, at least at present standards of consumption, is too small to absorb the production of an iron and steel industry on a full and economic scale. It should be noted that a steel rolling mill and "iron ore mining and steel smelting" were listed among the projects supplied by the Ministry of Industries to the planners who, possibly pointedly, did not comment on the proposals. It has subsequently been announced (1961) that a steel rolling mill, built with Russian technical assistance, is to be established at Oruwela, near Colombo.

If the Ceylon planners were wise to reject heavy industry as an immediate producer of the capital goods necessary for industrialisation, they were equally wise, (subject to the points to be made in a moment) to recognise the tremendous value to the island's economy of the plantation and export crop industries and not to dismiss them chauvinistically as foreign enclaves or as parasitic on the national economy.

## AN OVER-OPTIMISTIC ASSESSMENT?

In a number of respects, however, the plan seems over-optimistic in its assessment of the means by which the broad strategy is to be put into effect. Space forbids a complete review of these proposed means, and in any case many of the matters concerned are highly technical and well outside the author's competence. Let us, however, take one or two fields in which he feels reasonably at home.

It will be clear from what has been said that the export crops have a vital role to play, since they are *inter alia* to replace heavy industry as a means of obtaining capital goods for industrialisation. Something has already been said of the essential soundness of the planners' judg-

[16] *Ten-Year Plan* (1959): 57.

ment that increased exports of tea, rubber and coconuts can only to a limited extent be derived from the opening up of new lands. Most of the planned increase in exports is to come by increasing average yields per acre during the ten-year period: from 697 pounds to 1,119 pounds per acre (an increase of 61 per cent) in the case of tea; from 333 pounds to 493 pounds per acre (48 per cent increase) in the case of rubber and from 2,291 to 2,622 nuts per acre (14 per cent increase) in the case of coconuts.[17] Quite apart from the problem of marketing and of increased home consumption (particularly important in the case of coconut as the population rises) it is possible to doubt whether these figures will in fact be realised. It is true that the best estates already considerably exceed the planned yields, that the yield of tea and rubber at any rate are rising, and that the planners' estimates of increases are much less than the assuredly over-optimistic figures suggested to them by the Department of Agriculture. But in the case of the estates (particularly important for tea and rubber) much will depend on the extent to which owners, Ceylonese or foreign, are willing to invest capital, which in turn depends largely on the estimate they make of the political stability of Ceylon and, so far as foreign owners are concerned, of the prospects for foreign capital. There are few who view the future with complete assurance—though the export crop industries have shown a remarkable resilience so far.

The biggest scope for increased yields of tea, rubber and coconuts lies without doubt in the numerous smallholdings (particularly important in the case of coconuts). But it has hitherto proved very difficult indeed to persuade the smallholder to use improved methods, and it seems certain to many who have studied the problem that one is here up against the diseconomies of small-scale holdings; particularly is this so where replanting is involved—as it must be, notably in replacement of Ceylon's aging coconut palms.

If one passes from the small-holder and peasant as a producer of export crops to the peasant as producer of food crops, one finds even more reason for caution in accepting the future yield estimates of the Ten-Year Plan.[18] The role of the peasant food producer is, of course, not only to grow as much food as possible at home and at competitive prices, but also to release foreign exchange at present spent on food imports and, by diversifying his production, to broaden the base of the economy and to reduce reliance on the outside world for particular commodities.

Rice is naturally the basic foodstuff involved, and it is planned by 1968 to produce 75 per cent of requirements, compared with about 45 per cent in 1957. The plan envisages both an increase in the cultivated area and an increase in yield per acre. As to the former, an additional

[17] The author is indebted to Dr Gamani Corea for clarifying these figures. See also *Ten-Year Plan* (1959): 167-222.

[18] *Ten-Year Plan* (1959): 223-83.

270,000 acres of irrigated paddy is planned; this is an increase of about 25 per cent on the 1954-55 acreage, and is not outside the bounds of possibility, though at a cost, given the increasing difficulties of Dry Zone development. So far as productivity of paddy land is concerned, it is the aim to increase this by no less than 50 per cent (to 48 bushels per acre) and here one is far more doubtful. It is true that given technical methods at present understood by the Department of Agriculture these yields can be achieved and indeed surpassed on suitable soils. But they can only be reached if soil characteristics are known, if fertiliser and lime are suitably applied and if intensive methods of cultivation and high-yielding strains are used. Here one is up against the resistance to change of the Ceylon peasant. Much might be said on this subject, but suffice it to say that this is not mere conservatism, still less stupidity, but is compounded largely of rational doubt, poverty, poor credit facilities, and an extensive attitude to land bred of a situation in which, because there *was* plenty of land, an extensive attitude was perfectly logical. (The author does *not* regard the small size of holdings as a factor here; for there are few if any economies of scale in paddy cultivation.[19]) The planners seem convinced that Ceylon is on the verge of a break-through on the paddy-growing frontier. The author, while recognising that the forces of change are gathering slowly in some of the paddy-fields of Ceylon, is unconvinced that they are yet doing so fast enough or universally enough to have the effects predicted by the planners.

Of the other foodstuffs which it is hoped to grow, *inter alia* to diversify production, sugar is especially noteworthy. The planners rightly point out the extent to which the cultivation of cane sugar has been neglected, though physical conditions appear to be suitable and though large sugar imports are necessary (129,000 tons in 1957, an estimate of 178,000 tons in 1968). Moreover, sugar cane is a labour-intensive crop. The planners boldly envisage 68,000 acres under cane to achieve self-sufficiency in sugar by 1968. It will be most interesting to see whether this ambitious plan will achieve fruition. But it has got off to a bad start, for the factory that has been built at Kantalai, near Trincomalee, was at a standstill in April 1961 owing to shortage of cane. Eighty thousand tons were to have been harvested, but only 20,000 tons were available.[20] This is only enough for 20 days' work at full capacity.

Many other potential crops depend on a solution to the intractable problem of the unirrigable Dry Zone land. Research is in progress but it is still nearly as true as in 1957 that "the problem of maintaining fertility, and even of keeping any soil on the holding at all, is so great that one cannot with confidence say that any device so far exploited can guarantee dry, rotational cultivation of Dry Zone high land in

[19] Farmer (1960).
[20] *Ceylon News*, 6 April, 1961.

perpetuity."[21] To their credit, the planners quote this pessimistic conclusion.

Much might be said, too, of the over-optimism in industrial planning.[22] The planners have eschewed grandiose schemes for heavy industry and have wisely thought instead of a fairly wide range of lighter industries and a supplementary, labour-absorptive programme of small-scale and cottage industries. Many of the industries are *prima facie* suited to Ceylon, especially cement, fertilisers, sugar, textiles, salt, and certain chemicals. It is planned that investment in the "planned sector" of industry will increase from 54.9 million rupees in 1959 to 196.0 million rupees in 1968; and that incentives will also lead to activity in the "unplanned sector". (It is not intended that "planned" and "unplanned" should be synonymous with public and private enterprise respectively.[23]) But one is sceptical both of the managerial capacity of the State (given the problems of existing State industry in Ceylon) and of the venturesomeness of private entrepreneurs.

To sum up, then, the Ceylon Ten-Year Plan, 1959-68, is boldly conceived and strategically has many admirable qualities. If it fails to achieve its targets, it will be because of over-optimism in detail and because non-economic factors, especially political stability, governmental hard-thinking, and social considerations prove adverse.

[21] Farmer (1957): 346.
[22] *Ten-Year Plan* (1959): 345-405.
[23] *Ten-Year Plan* (1959): 348-351.

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*The maps are based on maps of the Ceylon Survey Department with the permission of the Surveyor-General.*

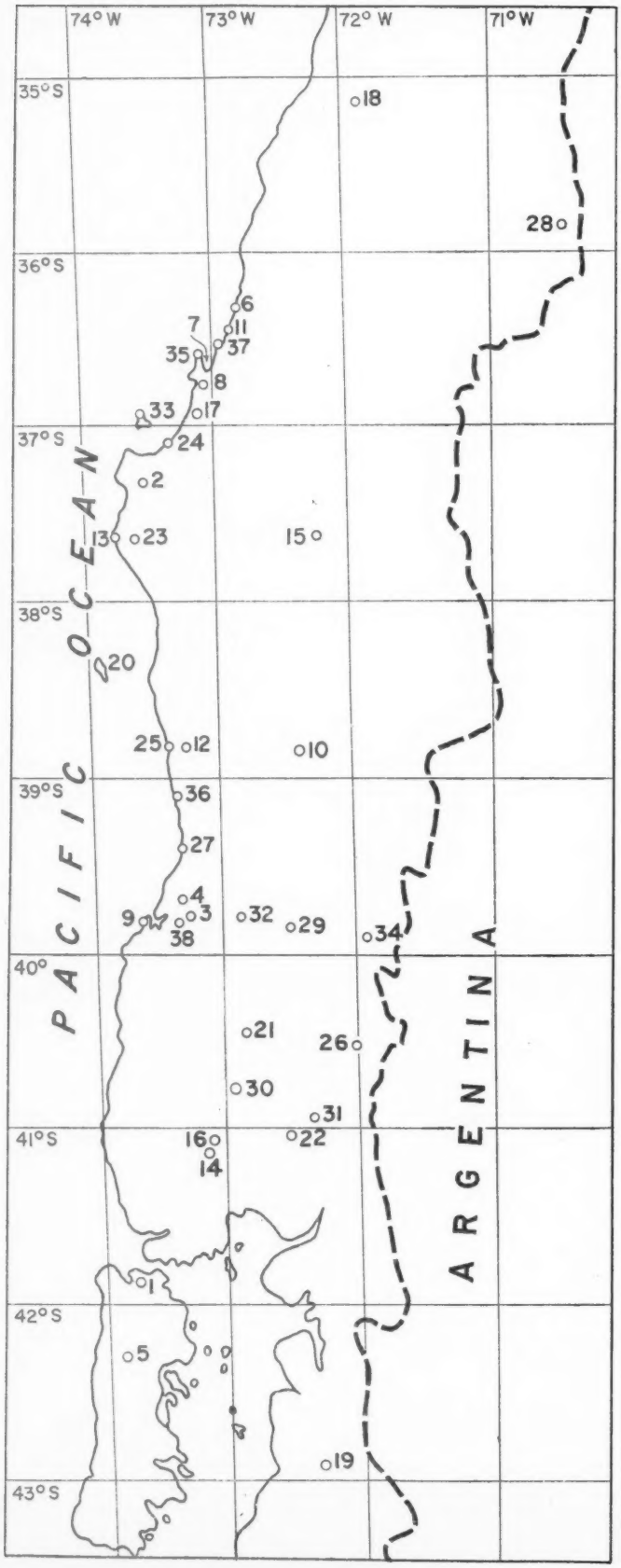


Fig. 1. (a) Location Map.

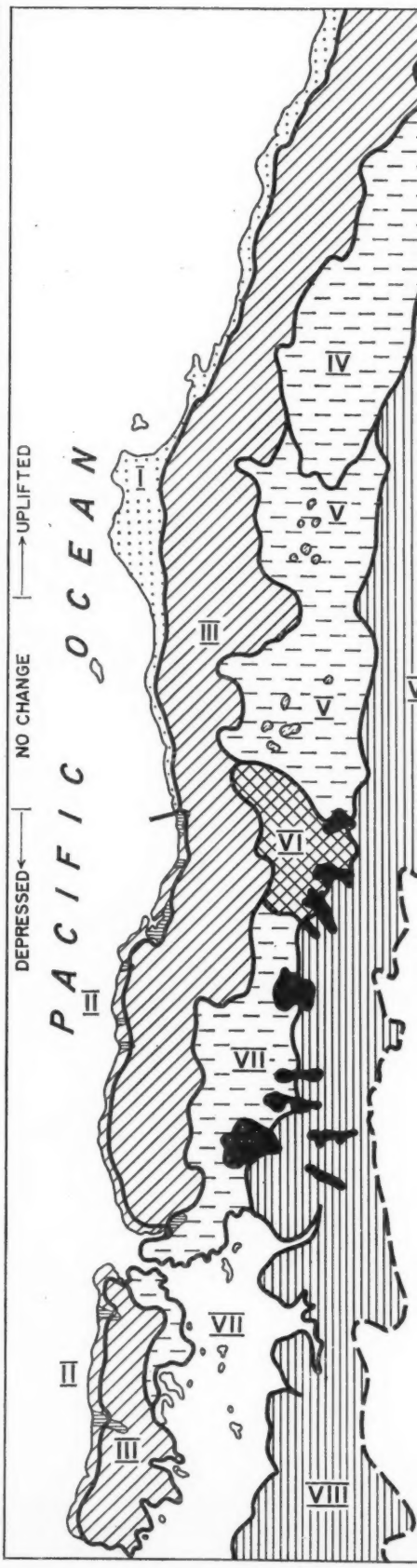


Fig. 1. (b) Broad geographical regio

1. Ancud town
2. Arauco peninsula
3. Calle-Calle river
4. Cruces river
5. Chiloé island
6. Coliumo village
7. Concepcion bay
8. Concepcion city
9. Corral town
10. Cautin province
11. Dichato town
12. Imperial river
13. Lebu town
14. Llanquihue province
15. Los Angeles city
16. Los Pellines village
17. Lota and Schwager—coal mines
18. Maule province
19. Michimávida volcano
20. Mocha island
21. Osorno province
22. Osorno volcano
23. Pehuén village
24. Penco town
25. Puerto Saavedra
26. Puyehue volcano
27. Queule village
28. Quizapu volcano
29. Riñihue lake
30. Río Negro village
31. Rupanco lake
32. San Pedro river
33. Santa María Island
34. Shoshuenco volcano
35. Talcahuano peninsula
36. Toltén town
37. Tomé peninsula
38. Valdivia City

I. COASTAL LOWLANDS North of Lat. 39°S: Littoral region consists of series of elevated bench terraces overlain by coastal drift, and a narrow strip of recent dunes with areas of swamp land.

II. COASTAL REGION South of Lat. 39°S consists of a cliffed shoreline with drowned valleys and small sandy bays near the river mouths.

III. COASTAL RANGES seldom over 3,000 feet in height and often less than 1,000 feet with many gaps where breached by transverse rivers.

IV. VALE OF CHILE North of Lat. 37°S: Central plain with slightly dissected terraces merging with more maturely dissected terrace downland along eastern and western flanks. Evidence of repeated uplift and dissection.

V. VALE OF CHILE between Lat. 37°S and 39°S: Central plain with much less evidence of uplift and dissection. Numerous island hills representing volcanic vents of Tertiary era.

VI. VALE OF CHILE between Lat. 39°S and 40°S: Central plain restricted to relatively narrow valleys and small basins between foothills of Andean Cordillera and outlines of coastal range. No evidence of uplift or dissection.

VII. VALE OF CHILE between Lat. 40°S and 42° 50′S: Central plain occupied by glacial drift and younger alluvial deposits. No marked evidence of dissection but indication of deteriorating drainage conditions on flat land.

VIII. ANDEAN FOOTHILLS AND CORDILLERA with active volcanoes spaced at about 30 mile intervals.

graphical regions of Chile.

# The Earthquake of May 1960 in South-Central Chile

A. C. S. WRIGHT

On the 21st and 22nd of May 1960, severe earthquakes largely destroyed the cities of Concepción and Valdivia, and severely damaged other centres over a wide area in south-central Chile.

The people of Chile have come to accept earthquake and volcanic eruptions as almost a normal feature of their life. Severe earthquakes have been recorded in every century since the arrival of the Spaniards in the sixteenth century and the frequency of earth movements of moderately severe intensity is such that practically every Chilean undergoes an unpleasant experience of this type at least once in his lifetime.[1]

The voyage of the *Beagle* brought Charles Darwin to the shores of Chile in time to experience the severe earthquake of 20th February 1835. The main earthquake occurred near Concepción, but Darwin was in the forest near Valdivia for what he describes as "the most severe earthquake experienced by the oldest inhabitant".[2] A few days later the *Beagle* sailed to Concepción and Darwin was able to see some of the devastation occasioned by the earthquake and tidal waves, and to study phenomena associated with a very recently elevated shoreline. The situation in Concepción was more fully described by Captain Fitzroy.[3] Some 385 years earlier, as recorded by Captain Don Pedro Mariño in *Crónica del Reino de Chile*,[4] Valdivia was destroyed. This occurred on 16th December 1575, only 23 years after being founded by Don Pedro de Valdivia. On this day the nascent city was almost completely demolished by earthquakes and tidal waves, and four months afterwards, in April 1576, it was further disorganised by floodwaters

[1] Viz: 1562, 1570, 1575, 1633, 1657, 1709, 1730, 1737, 1742, 1751, 1786, 1835, 1837, 1874, 1898, 1907, 1928 and 1939—all are years when moderate to severe or severe earthquakes have been recorded in south-central Chile. Valdivia experienced a total of 68 severe tremors between the years 1851 and 1878—an average frequency of two to three per annum. Between 1910 and 1915, Valdivia experienced severe tremors with a frequency between five and 12 per annum. Brüggen (1950).

[2] Darwin (1837).

[3] Fitzroy (1836): 319–31.

[4] Mariño (1865).

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released when the river San Pedro broke through a huge landslide that had been impounding the waters of Lake Riñihue since the day of the earthquake. Thus the events of 1960 have had close parallels in the recorded history of the past.

## REGIONS OF CHILE AFFECTED BY EARTHQUAKES

Looking back beyond the historical records, we can find additional evidence in the landscape and in the soils which suggests that three definite geographic trends are operating:

(1) From Latitude 38°S northwards the coastline of Chile is being subjected to successive or at least cumulative, uplifting.

(2) From Latitude 39°S southwards the coastline is progressively sinking.

(3) Inland, along the foothills of the Andean Cordillera, there are cycles of intensive erosion accompanied by greatly increased building which lead to the periodic formation of debris cones at the heads of the lakes.

The area seriously affected by the most recent seismic disturbances extended from the Province of Maule (latitude 36°30′S) to the southern tip of Chiloé Island (latitude 43° 50′S). Within these latitudes fairly marked earth movements occurred over the whole width of the Republic, and were also felt on the other side of the Andes in Argentina. A total area of more than 100,000 square miles was involved.

Between the latitudes mentioned above, the landscape of Chile (see Fig. 1) comprises:

(1) *A coastal range,* of an average width of about 30 miles, with a strip of coastal lowland on the western flank extending south as far as latitude 39°50′S. Further to the south the Pacific littoral consists mainly of cliffed shorelines with occasional sandy bays in the vicinity of drowned river mouths.

(2) *The Andean Cordillera* of high mountains with their attendant foothills. Here are found deep glacial valleys and large lakes, the latter occurring only to the south of latitude 39°S. In this section of Chile, the Andes reach a mean elevation of about 5,250 feet, with some passes as low as 2,500 feet and isolated peaks attaining over 8,000 feet.

(3) Between the coastal range and the main cordillera, there is a region of much lower elevation (150-800 feet), some 380 miles in length, and of an average width of 45 miles. This lowland is usually referred to as the Vale of Chile. This is, however, by no means a valley in the normal sense; it is simply the depression

between the coastal range and the Andean Cordillera, partly infilled by old marine and lacustrine sediments, various kinds of glacial outwash, fluvial materials dumped by rivers draining from the Andes, with included beds and superficial deposits of volcanic ash and volcanic loess. These materials, in places, attain considerable thickness; for instance, near Chillán, the materials infilling the Vale of Chile are more than 1,000 feet in thickness. North of about latitude 38°S, this Vale of Chile takes the form of a central plain flanked by broad terraces representing old land surfaces of various ages in progressive stages of dissection. In many places there is evidence indicative of at least four periods of erosion, alternating with four periods of intense accumulation. Materials belonging to the first period of accumulation are now to be found as a capping over the less elevated sections of the coastal range, at altitudes of up to 1,400 feet above present sea-level. South of latitude 39°S, the character of the Vale of Chile changes markedly. In this region, spur ranges from the foothills of the Andean Cordillera extend westward across the lowlands almost meeting the eastern outliers of the coastal range which here reaches its widest extent (about 40 miles). Between these hills, the lower-lying part of the landscape is built up of thick layers of glacial outwash deposited in fluvial and lacustrine patterns, interspersed with ancient beds of volcanic ash, some of which are water-deposited, but others of which are clearly of sub-aerial origin. Accumulative materials of this type extend as far as the north-eastern corner of Chiloé Island, and similar deposits may once have filled the upper part of the Gulf of Reloncaví. Throughout its length, the Vale of Chile is traversed by rivers flowing westward from the Andes to the Pacific Ocean. Scale transects between the Andean Cordillera and the Pacific coast for latitude 36°30′S, 38°S and 40°30′S are shown in Fig. 2.

The geological pattern of this part of Chile is comparatively simple. The coastal range is formed mainly from metamorphosed sediments of Paleozoic or Precambrian age, chiefly mica-schists but including shales, slates, phyllites, and some gneiss. North of latitude 38°S, the coastal range is in part formed of granitic rocks considered to be of Middle or Upper Cretaceous age. On the other hand, the Andean Cordillera is formed mainly of Tertiary and Quaternary andesites and basalts, with considerable areas of Jurassic and Cretaceous indurated sediments resembling the greywacke of New Zealand, forming the foothills north of latitude 39°S. Granite rocks are also found in the Andean Cordillera but occur mainly south of this latitude. On the coastal lowlands, the peninsulas of Arauco and Tomé are formed mainly from Lower and Middle Tertiary marine sediments which contain coal seams. However, the various marine sediments (of diverse Cretaceous, Tertiary and

Pliocene ages) are of relatively minor importance in this part of Chile. Island hills representing old volcanoes formed by basaltic eruptions in the Pliocene occur occasionally in the central part of the Vale of Chile between latitude 37°S and latitude 39°S, but present-day volcanic activity is confined to the chain of volcanoes located high in the Andean Cordillera.

The more obvious fault lines all run more or less parallel to the coast on both western and eastern flanks of the coastal range, while others, less distinct, parallel the foot of the Andean Cordillera. In addition to these there are some obvious lines of weakness within the Andes following the alignment of the volcanoes and the various hot spring locations interspersed between them. Transverse faults, running west to east between the coast and the Andes, almost certainly do exist, but few have as yet been identified with certainty. It is noteworthy that the seismic activity of 21st and 22nd May 1960 caused no obvious displacement of any of the major known faults, even those under close observation, such as those of the coal mines of Lota and Schwager,[5] to the south of the city of Concepción.

## THE EARTHQUAKES OF MAY 1960

The most recent period of seismic activity was initiated at 6.02 a.m. (10.02 G.M.T.) on 21st May,[6] when an earthquake of grade 7.75 on the Richter scale (grade IX on the Cancani-Mercalli-Sieberg scale) caused extensive damage to life and property in the city of Concepción, and over the whole coastal region between Penco and Lebu, extending inland as far as Los Angeles, where a force of VII on the CMS scale was registered. The epicentre of this earthquake is considered to have been about 50 miles west of the Arauco peninsula. The shock was clearly felt in Santiago, but was of light intensity, although of fairly long duration. At the time of this movement the coastline between Lebu in the south and Dichato in the north underwent elevation, reaching a maximum of about four feet in the case of the Arauco peninsula. Similar elevation is reported from the offshore islands of Santa María and Mocha.[7] On the island of Guafo, some areas were reportedly elevated as much as nine feet.

Apart from a brief abnormal surge in the sea reported from Talcahuano, no tsunamis or other unusual tidal phenomena were associated with this first earthquake. Almost all the damage to property was produced by changes in the state of unconsolidated sediments below buildings. Changes were usually in the nature of compaction of weak layers in the subsoil, and the sliding of mobile subsurface layers into

[5] Watanabe (1960).
[6] Figueroa (1960.)
[7] Watanabe (1960).

lower-lying positions. Landslides of major size were comparatively rare, the only serious one being at Pehuén, in Arauco Province.[8]

On the following day, 22nd May, at 3.10 p.m. (19.10 hours G.M.T.) the provinces of Chiloé, Llanquihue, Osorno, Valdivia and Cautín were severely shaken by an earthquake which reached a magnitude of 7.5 on the Richter scale. The epicentre of this movement was also in the Pacific Ocean, somewhere west of the island of Chiloé. Within 30 seconds a longer and more severe earthquake occurred with an epicentre which is calculated to have been about 95 miles west of the city of Valdivia, approximately in latitude 39°S and longitude 73°30′W, a region where the ocean has a depth of between 1,500 and 2,000 fathoms. In Valdivia City this earthquake reached a maximum magnitude of 8.5 on the Richter scale (X on the CMS scale). (Earthquakes of this rating are classed as "highly destructive", with shockwaves reaching an acceleration of between 1,001 and 2,000 mm/sec.$^2$)

During the earthquakes of 22nd May, the coastal regions from Puerto Saavedra southwards experienced considerable geographic alteration. South of Toltén the whole coastline suffered a depression of between four feet and six feet and the sea immediately began to flow inland across the alluvial bottomland of the transverse valleys. Following closely on this, the coastline was assaulted by tsunamis, which ranged from two to 10 in number, and varied in amplitude from six feet to 50 feet, depending upon the configuration of the shore line and the slope of the coastal shelf. These tsunamis travelled across the Pacific, reaching the shores of Hawaii, Japan and New Zealand, travelling at a velocity computed to be between 400 and 800 miles per hour. In Chile the tsunamis caused heavy loss of life and destroyed practically all the coastal settlements and port facilities between Coliumo in the north and Ancud in the south, with the exception of those in the Bay of Concepción which was protected by the Talcahuano peninsula. At Corral, the former port for Valdivia, the first tsunamis arrived within 10 minutes of the main shock.[9] At Ancud, in the south, the tsunamis arrived from a north-westerly quarter about 18 minutes after the main earthquake;[10] while at Coliumo, in the north, they arrived almost an hour after the earthquake and were of relatively minor amplitude but nevertheless caused very extensive damage owing to the configuration of the coastline.

In these coastal settlements buildings are normally constructed of wood. Those nearest the shore were set afloat or overturned and the resulting debris battered and destroyed buildings further inland. In many places the ameliorating effect of a belt of trees or even a well-established hedge was very noticeable. In areas where the land had just

[8] Watanabe (1960).
[9] Watanabe (1960).
[10] Galli (1960B).

previously sunk the slow inflowing of the sea across the landscape provided the inhabitants with sufficient warning to allow them to flee to the nearby hills, but in Queule and other localities where the tsunamis arrived quickly there was considerable loss of life amongst those on the land as well as those who had taken to the sea for safety. To the north of Toltén, where the land did not alter markedly in elevation during this earthquake, the waves arrived with little prior warning.

When the waves receded, the farmland nearest to the coastline was left strewn with debris; cultivated fields had the topsoil eroded, and everywhere fences were destroyed and livestock carried away. In places where the coastal plain was partially protected by sandspits or dunes the waves carried sand inland and deposited this over farmland. In districts where the coastal plain is of undulating relief the depressions were left filled with salt water which subsequently killed pastures, crops, and later, trees, Yet these troubles were relatively minor compared to those that affected farmers in areas where the coast had actually suffered depression prior to the arrival of the tsunamis. Here the waves advanced up the valleys of the rivers for a distance of up to five miles inland, sweeping away or severely damaging farm installations along the valley sides. Here, when the waves receded, a good part of the valley floor was left permanently inundated, occupied at first by seawater and subsequently, by admixture with river water, with brackish water which is still subject to tidal movements of considerable amplitude (Fig. 4).

All along the coast, tsunamis changed the configuration of the sandspits and sand bars near the river mouths, almost completely blocking some rivers. In only a few cases was there produced an improvement in the outlet of rivers. In the case of the Río Imperial, a river in Cautín Province, the movement of sand into the actual mouth of the river was severe enough to produce an immediate rise in the level of the river owing to water becoming backed up for many miles upstream.

In certain districts where the coastal plain is formed of consolidated dunes and is of undulating relief some depressions have, over the years, become filled in by the accumulation of organic residues. The shaking of the earthquake caused a consolidation of the lower, most decomposed, layers of this peat, causing a local lowering of the surface of the land (Figs. 7, 8). Many of these depressions have now become fresh-water lagoons and presumably in time will again fill with organic residues. This local sinkage phenomenon is more conspicuous to the north of Queule, where the actual level of the whole landscape was not depressed during this earthquake. To the south of Queule, where the land appears to have sunk on previous occasions, many peat-filled depressions show stratification, the peat being interspersed with layers of marine clays and sandy alluvium deposited during previous ingressions of the sea. These stratified organic beds are not consolidated as easily as the unstratified peats of the northern part of the coastal plain, yet in several

places some additional consolidation has clearly occurred during the recent earthquake. In many places along the southern section of the coast where alluvial land is now permanently inundated it is impossible to be sure how much of the inundation is due to general sinking of the land and how much due to local consolidation of organic layers in the subsoils. To the hard-pressed owners of the land this may appear to be somewhat of an academic question, of little significance alongside their pressing need to salvage what they can of their drowned assets. Yet it is obvious that reclamation schemes will have to take into account this extra factor.

Most inland centres of population were affected by the earthquakes of 22nd May and suffered considerable damage to property, but fortunately loss of life was comparatively small. This was partly due to the fact that the events of the day before had to some extent alerted the population throughout Chile, but also in a large measure was due to the fact that the second disaster occurred in the mid-afternoon, on a day when most of the population were abroad in the streets celebrating a public holiday—the day of Admiral Arturo Prat, hero of the naval battle between Chile and Peru in 1879. Of all the populous areas in south-central Chile by far the worst affected was the city of Valdivia, where at least 60 per cent of the buildings in the centre of the city were destroyed or severely damaged. Valdivia is located a short distance inland from the sea at a point where the river San Pedro, carrying the effluent water from a system of large inland lakes, breaches the coastal range. The site is a gently undulating one, ranging from 10 to 50 feet above sea level near the bank of the river Calle-Calle (the name given to the lower reaches of the river San Pedro). The city is located opposite the confluence of this river with the river Cruces. The substrata on which most city buildings have been constructed are either recent alluvial materials or Quaternary sediments consisting of weathered gravels, sands and clays, and, in the higher parts, weathered mica-schist. Undulations in this terrain have been filled in with soil and other debris to form the almost level foundation of the city. This latter type of fill permitted very uneven displacement and many buildings were completely destroyed; but it is also true that most of the natural substrata materials reacted badly during the earthquake. Internal packing and lateral slidings were responsible for most of the displacement of buildings in Valdivia.[11] Indeed, this observation applies widely in towns throughout south-central Chile. In some localities even the partially weathered Quaternary gravels underwent considerable displacement, particularly when located near steeply sloping margins of rivers or lakes. In many cases instability was clearly associated with the presence of groundwater at levels near the surface, but in other cases instability

[11] Doyel (1960).

appeared to be due to the presence of beds of weathered volcanic ash interbedded amongst the gravels. These ash layers have weathered to the stage which they are rich in allophane, a type of clay that is fairly stable when dry, but which can absorb a very large amount of water, which is subsequently expressed when agitated under pressure producing a remarkable phenomenon resembling liquefaction. During the earthquake, the material in these ash layers becomes "liquefied", thus removing support from the gravel beds above and allowing them to fracture. Blocks of the latter were thus enabled to slide laterally, *en masse,* into gulleys, rivers or lakes. Movements of this type were particularly noticeable in towns located on landscapes formed by dissection of terraces composed of gravel beds interlayered with ash beds, as happened in the case of the town of Rio Negro, where destruction of buildings was very severe.

On the other hand, similar beds formed of weathered gravels interbedded with volcanic ash generally proved to be stable where they occurred on undissected landscapes, where there is less scope for lateral movement. More recent and much less weathered beds of gravels, consisting mainly of loose and rounded materials, seem to have absorbed the earth shocks much more successfully. In some places (e.g., Los Pellines) even heavily and unevenly loaded storage barns survived with only minor damage. Beds of sand generally proved to be fairly stable as building sites if the sands were in a dry condition at the time of the earthquake, but in cases where lower levels of the sand beds were saturated with water, quite severe damage occurred.

The newly constructed cement-paved sections of the Pan-American or "Longitudinal" highway resisted damage fairly well, and road traffic was interrupted by the earthquake mainly because of the collapse of sections of earth fill used to form approaches to bridges. The bridges themselves usually escaped damage. A few short sections of road were actually thrown out of alignment, but the cause was in almost every case the displacement and consolidation of filling material deficient in gravel or with too high a proportion of clay soil. In some of the worst examples the filling material contained a high proportion of volcanic ash soil very rich in allophane clay, a material which thus demonstrates its unsuitability for highway construction purposes. The permanent way of the railroad was locally fairly seriously displaced, and rail traffic in Llanquihue province had to be suspended for several weeks.

Some of the worst cases of damage to life and farming property occurred in the Andean foothills, where agricultural endeavour has been steadily spreading upward from the lowlands on to the steep hillsides of the cordillera. Damage of this type was severe in the foothills near Lake Rupanco. In their natural condition these slopes were covered with dense forest, established on soils formed of material built up by recurrent showers of volcanic ash. Intentional or accidental destruction

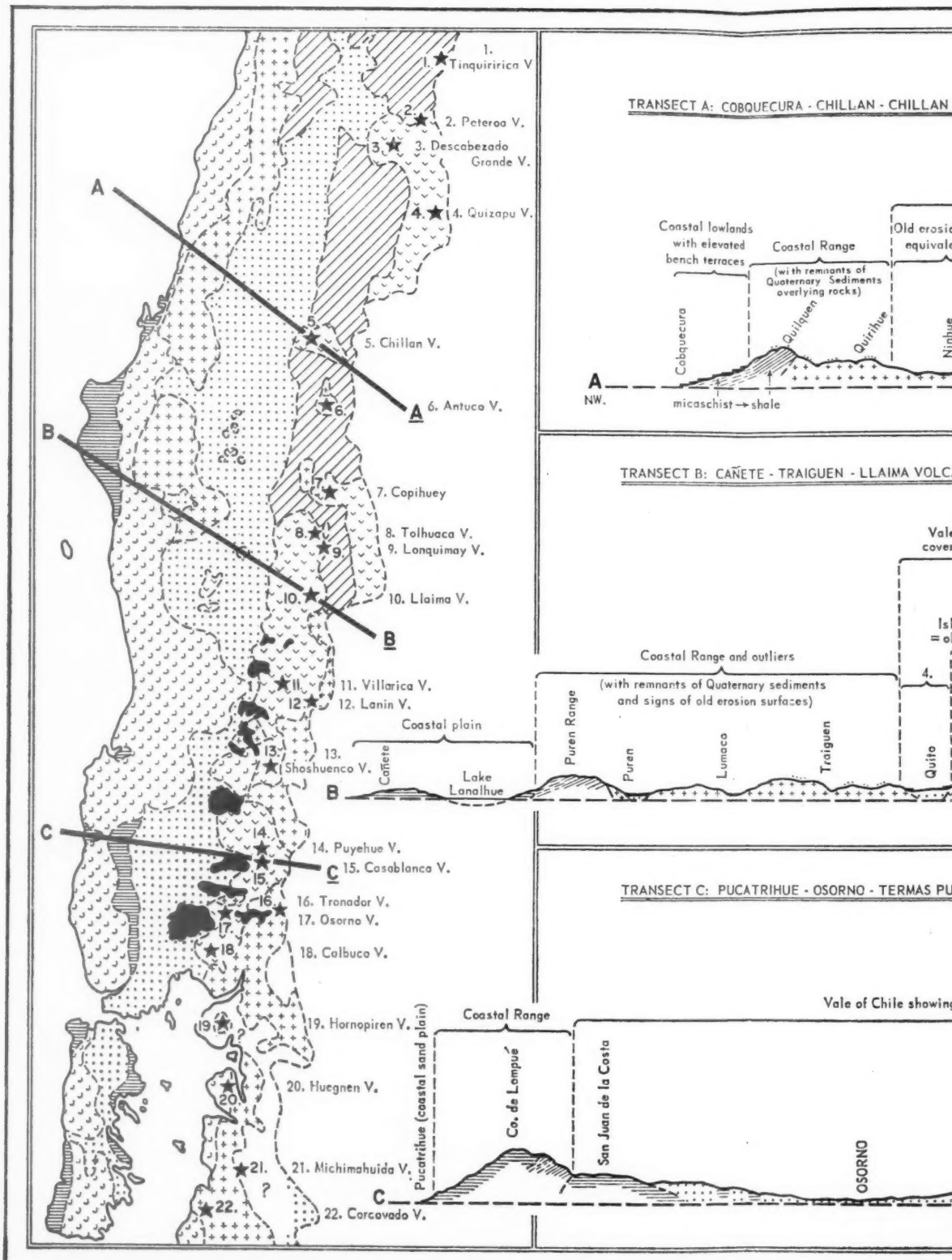
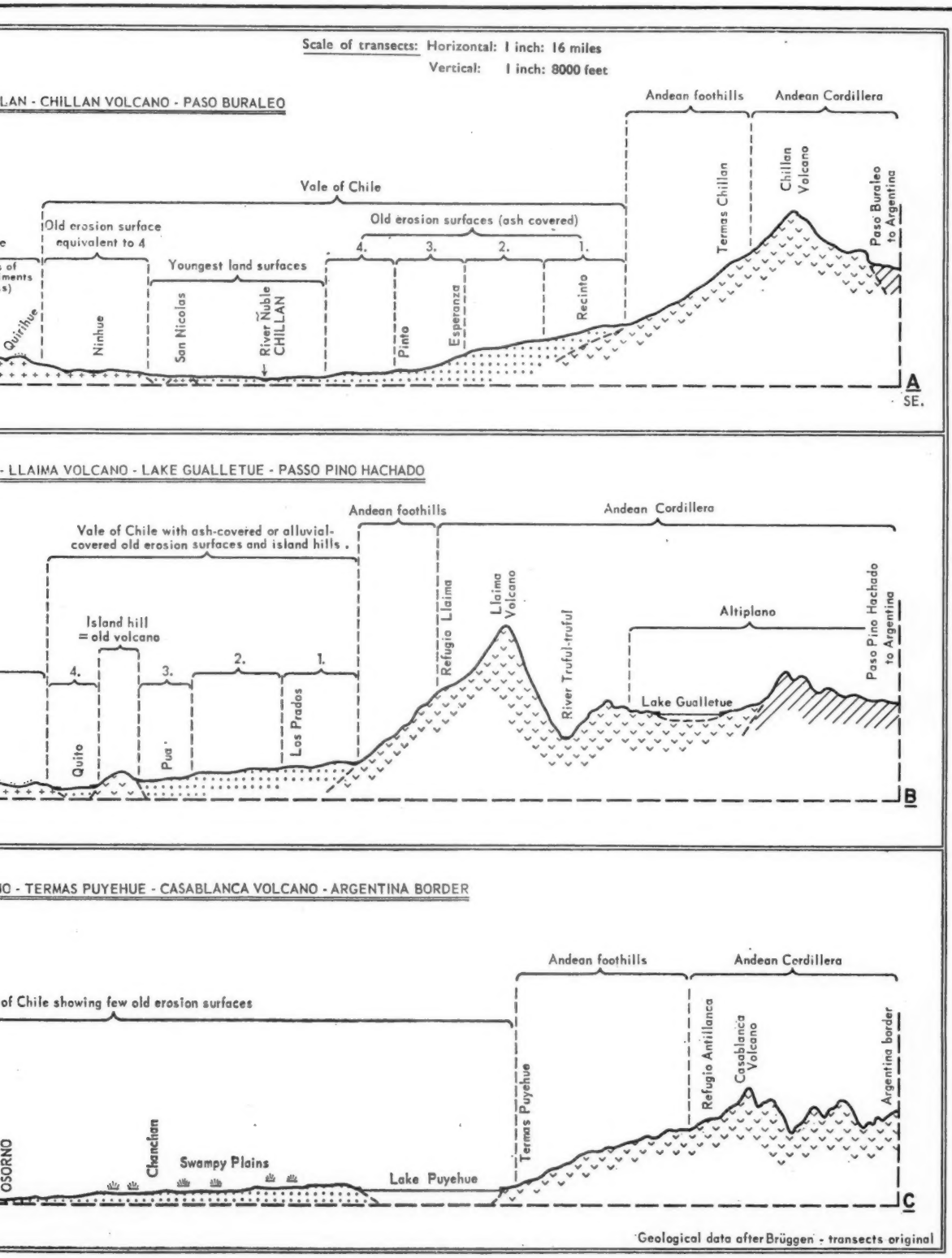



Fig. 2. Generalised geological sketch map of South-Ce




of South-Central Chile and three transects drawn to scale.

of the indigenous forest cover has resulted in a high degree of instability, and minor landslides are a regular occurrence on farms located in these foothills. Instability is especially marked on slopes where the former forests were of a shallow-rooting type (e.g., those dominated by *Aextoxicon punctatum,* "Oliviloo", and *Eucryphia cordifolia,* "Ulmo") and on slopes where the soils are formed by thick beds of scoria and pumiceous ash, separated by thin layers of fine andesitic dust now weathered to a stage rich in allophane clay (Fig. 5). At the time of the earthquake on 21st May, successive earth shocks precipitated landslides on a grand scale in the areas of greatest instability, sweeping away farms and farmers into the depths of the lakes. These landslides were, in reality, veritable debris avalanches, formed of a mixture of soil, trees, and rocks plucked from the hillsides. In places where they were not able to discharge directly into lakes as in Fig. 6, the descending debris reformed on reaching the lowlands, forming a type of mud-flow (Fig. 3), which swept across and engulfed other farmland at the foot of the slopes, at a speed observed as being "faster than a horse could gallop".

The lubrication for the high velocity of these debris avalanches and mud-flows undoubtedly came from water held in the porous scoria and pumice, water which was expressed by the weight of the descending mass. Expressed water also filled the air as a fine mist which did not disperse for several hours, producing an untimely fog which further confused the survivors of the catastrophe. Subsequent examination of unstable steepland soils in sites which had not suffered complete erosion during the earthquake (Fig. 5), showed that much of the initial weakness of the soil mantle lay in the allophane-rich horizons of the soil. These layers had partially "liquefied" and allowed the soil to begin sliding, and probably subsequently contributed to the high initial velocity achieved by the moving mass. Landslides of this type almost completely destroyed whole farming settlements, and by the destruction of roads and the blocking of rivers, isolated many more. Helicopters proved invaluable in locating survivors and in delivering small quantities of essential supplies to isolated communities.

The most serious of these landslides occurred in the San Pedro valley near the egress of this river from Lake Riñihue. In this lightly populated region no lives were lost at the time of the massive displacement of material in the cliffs along the north side of the river valley, but, as had happened 385 years earlier, the waters of Lake Riñihue (and all the water in an extensive system of intercommunicating inland lakes) were impounded behind gigantic debris barriers, thus forming a constant threat to the people in the scattered farms of the San Pedro valley and the more heavily populated Valdivian lowlands below. The northern face of the valley wall collapsed in three places, and thus the blockage was in three sections, that furtherest downstream being the largest and

nearly a mile in length. After an initial survey to establish levels, engineers laboured valiantly through two months of atrociously wet weather which rapidly augmented the water impounded in the lake until it reached to over 35 feet above normal level, digging through the debris in order to release the impounded water under some sort of control. At the end of July this task was completed. As a precautionary measure population and livestock were evacuated from low-lying parts of the San Pedro valley and from the lower sectors of the city of Valdivia before discharge of the water commenced. During the discharging process severe flooding occurred in these lowlands, but the amount of silt left behind when the waters receded was comparatively small. In the upper reaches of the valley almost no alluvial material was deposited. Actually, deposition of silt and sand may well have been very heavy during the first three days of the discharging period while the earth barriers were eroding, but during the last three days the swollen river was charged with lake water almost free of sediment and the speed of the current was such that most of the sediment that may have been deposited earlier would have been swept away. Indeed, during the final phase, considerable erosion occurred in the river bed and many small islands in the river were partly washed away. Farmers in the valley suffered more from erosion and from destruction of fences and outbuildings than from the heavy deposition of alluvium which had been feared.

The cause of the Riñihue landslips is not known for certain, but it is noteworthy that the thick beds of glacial outwash, which here are composed mainly of sands and gravels, also contain layers of volcanic ash weathered to the stage where they are rich in allophane clays. Thus the same element of instability is present here as was found in the case of the other major landslip areas of the cordillera.

At the time of the May earthquakes only minor volcanic activity was observed. Darwin several times mentions volcanoes which he observed in eruption during his year in Chile, although some of these eruptions antedated the earthquakes in Valdivia and Concepción. During the present period of seismic activity only one volcano, a small cone known as Cauye, parasitic on the side of the larger volcano Pueyhue, burst into violent eruption at 3.15 p.m. on 24th May, two days after the severe earthquake phase. For six days this volcano erupted pumiceous ash and stones, most of the heavier material falling within a radius of eight miles of the vent and much of the finer ash being carried over the Andes into Argentina by the strong westerly winds prevailing. Only a fine film of grey dust fell on the lowlands of Osorno province during this eruption. Minor activity was reported at about this time from a more northern volcanic centre dominated by the volcano Shoshuenco, but the extent of this activity has not been confirmed. A volcano, El Tupungato, even further to the north, in latitude 33°S, was photographed in eruption

*Photo: A. Mella*

Fig. 3. Debris of farming settlement of Gaviota, at the head of Lake Rupanco, overwhelmed by mud-flows and debris avalanches on 21st May 1960.

Fig. 4. Lowland permanently flooded by the sea due to subsidence during the earthquake of May 1960. "Los Boldos" Estate, near Toltén, Chile.

*Photo: A. C. S. Wright*

on 8th July, but this eruption also appears to have been of short duration.[12]

## IMPACT ON THE ECONOMY

The Chileans of the regions affected by this combination of earthquakes, tidal waves and volcanic eruptions were stunned at first but remained remarkably calm. Within a few days efficient evacuation by sea and air was operating, with Santiago as the main receiving centre. The aboriginal population, who are mainly of Araucanian stock and who exist as small farmers and fishermen in the less developed areas north of Valdivia, were naturally perturbed and revived ancient rites to placate the forces at work and subsequently staged other ceremonies to give thanks when the worst was past, but for many people life returned to almost normal conditions in a surprisingly short time. Technicians and engineers rose admirably to the occasion, and in an amazingly short time the road, rail and telegraphic communications between all but the most southern centres were functioning. The value of helicopters (many of which were loaned by Argentina) was amply demonstrated when, despite extremely unfavourable weather conditions, they repeatedly flew missions over very difficult terrain. The rural and urban police force—the "Carabineros de Chile"—showed outstanding efficiency and initiative, as did also the Army, Navy and Air Force units transferred into the devastated areas. Almost immediately planes began arriving in Santiago with urgently needed supplies donated from all over the world and many of the planes remained for a time to assist with evacuation. At the time of writing, four months after the first earthquake, most of the evacuees have returned to their home centres, leaving only a small (but inevitable) residue to intensify the already urgent problems of urban overcrowding in Santiago.

For the larger landowners and farmers the weeks immediately following the earthquakes were a sad period—a time for counting losses. For the lower income groups of the rural population these were undoubtedly weeks of added hardship but their losses were proportionately lighter and, as emergency programmes developed, this period brought a wealth of new experiences. For some of those in this group it brought a realisation of better living conditions and more varied nutrition, hitherto only imagined. New homes and new schools are now being erected in rural areas long neglected for lack of funds, and for many people, in

[12] Renewed volcanic activity during periods of seismic disturbance is quite frequently observed in Chile. Chillán volcano burst into eruption on the same night in 1906 as the great earthquake of Valparaíso and Quizapu volcano erupted during the earthquake of Talca, in 1928. Osorno and Michimávida volcanoes erupted just prior to the earthquake experienced by Darwin in 1835. Brüggen (1950).

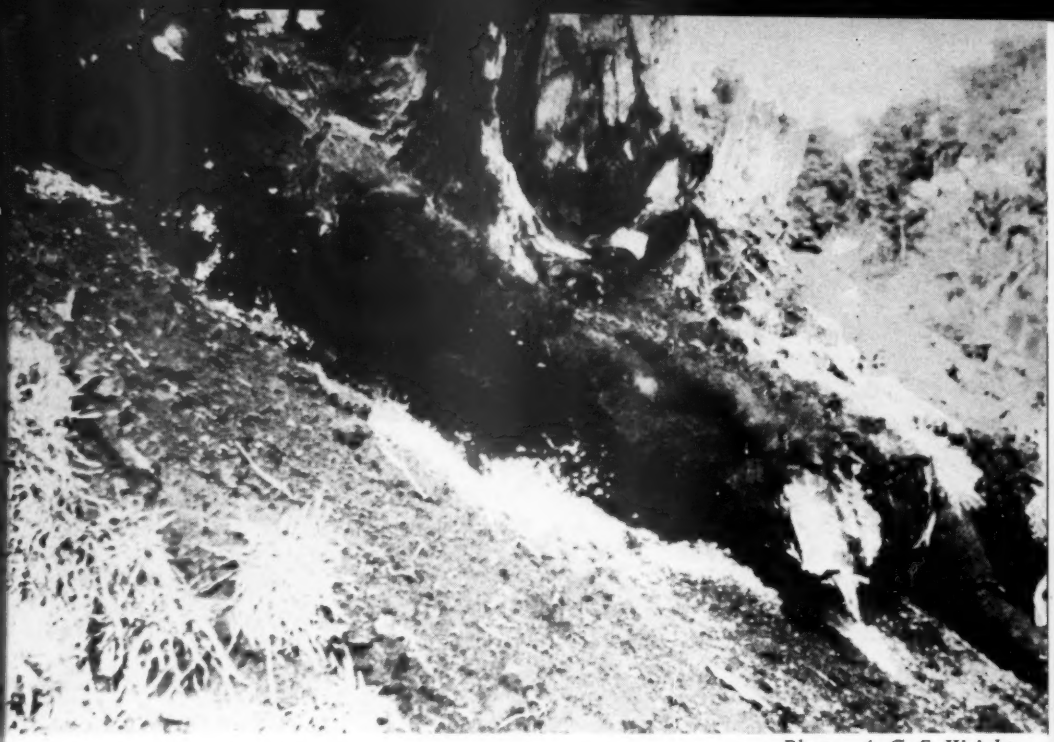


*Photo: A. C. S. Wright*

Fig. 5. Shallow rooted ulmo (Eucryphia cordifolia) trees growing in recent volcanic ash overlying pumice beds. Rio Blanco settlement, Lake Rupanco, Chile.

Fig. 6. The former site of Gaviota settlement, Lake Rupanco, Chile, swept bare by debris avalanches set off by the earthquake of 22nd May 1960.

*Photo: A. Mella*

the long run, the earthquake may prove to have been somewhat of a blessing come in curious guise.

The chief damage to the Republic has unquestionably been in the field of economics. The damage to, and loss of production from, manufacturing plants, total destruction of some small industries, severance from sources of raw materials, and difficulties in securing replacements for damaged parts, are all things that cannot be made good in a day. The economy of Chile, moreover, is in no condition to tolerate any prolonged loss of internal production. This is particularly true of primary production—the field wherein lies the real development potential of the country. In this field there have been severe setbacks owing to disablement of processing industries, interruption to communications, to supplies of potable water, electricity, and so on. However, the actual soil resources of Chile have suffered relatively slight permanent damage, as Table 1 shows.

TABLE 1

**Approximate Areas of Soils Lost or Modified as a Result of Seismic and Associated Disturbances of May-June 1960**

| Category I<br>Totally Destroyed | Total Area Affected (hectares) | Area Suited to Agr. Production (hectares) |
|---|---|---|
| *Permanent inundation by seawater* | | |
| Soils in an advanced stage of agricultural development | 12,000 | 12,000 |
| Soils in initial process of agricultural development | 20,000 | 20,000 |
| Undeveloped soils | 8,000 | 4,000 |
| *Plunged into deep lake water* (*N.B.* These were mainly steepland soils unsuited to agriculture, but the total includes some partially developed hill soils) | 20,000 | 700 |
| Total | 60,000 | 36,700 |

| Category II<br>Partially Destroyed or Considerably Modified | Total Area Affected (hectares) | Area Suited to Agr. Production (hectares) |
|---|---|---|
| By landslides, debris avalanches, slumping, etc. | 15,000 | 1,500 |
| By mudflows | 500 | 400 |
| By development of saline water-table surface | 1,500 | 1,200 |
| Total | 17,000 | 3,100 |

*Photo: A. C. S. Wright*

Fig. 7. Fissures produced in alluvial soil by compaction of the underlying organic deposits during seismic oscillations, Toltén District, Chile.

Fig. 8. Fissured ground marking the limit between alluvium deposited over gravels and the same material deposited over organic debris of a former swamp (foreground). The organic residues have compacted during the seismic oscillations and the level of the surface of the land in the foreground has fallen about 5 feet.

*Photo: A. C. S. Wright*

| Category III<br>Slightly Modified | Total Area Affected (hectares) | Area Suited to Agr. Production (hectares) |
|---|---|---|
| By salinisation during temporary immersion in water | 23,000 | 11,500 |
| By addition of veneer of coastal sand | 800 | 700 |
| By addition of pumiceous volcanic ash: | | |
| Between 1 cm and 5 cm in depth | 35,000 | 18,000 |
| More than 5 cm in depth | 22,000 | 3,000 |
| By permanent rise in level of groundwater | 17,000 | 10,000 |
| By temporary flooding by lake waters | 13,000 | 8,000 |
| By minor displacement (slumping, minor slips) | 3,000 | 900 |
| Total | 113,800 | 52,100 |

Agricultural reconstruction is mainly taking the form of ample long-term credit to enable the rebuilding of destroyed or damaged farm buildings, replacement of fences, reconstruction of drainage and irrigation systems, etc., as well as loans for seed, fertiliser and machinery necessary for the general improvement of agricultural production. The worst-hit farmers were those of the coastal lowlands, where many have lost all or part of their land to the sea or to river water. Some of these farmers who have lost all but a small fraction of their fertile alluvial land are now faced with the need to reclaim what they can of the inundated area, and will have to attempt development of their less-fertile hill soils. In many cases reclamation of inundated land may have to be abandoned because of the high costs involved, and some farmers may have little alternative but to seek some financial assistance in order to purchase new properties elsewhere. There are still considerable areas of relatively inexpensive land in Llanquihue and Osorno provinces with soils that need but a little additional clearing, draining and fertilising to make them into good and productive farmland. Some small local reclamation schemes appear feasible, but one of the main difficulties in the way of accepting small, purely local schemes for reclamation of areas of inundated land lies in the fact that such proposals must include adequate safeguards against the possibility of further sudden sinking of the littoral area at some future date. There is now ample evidence that this type of movement has been of fairly regular occurrence in the past.

## THE FUTURE

There is no doubt that the seismic disturbances have focused attention on weaknesses in the state of agriculture in this part of Chile. In a like

manner it has brought more widespread realisation of the need to work consistently to maintain and spread the benefits of a desirable standard of living. The earthquake of the Day of Arturo Prat—the hero who, be it remembered, once before served his country well at a crucial time—well and truly shook up a region in Chile where production has long been hampered by an uneasy compromise which seeks to adapt the existing agrarian system to meet the urgent demands of the modern national economy. In this respect, Chile needs to use its soil resources with much greater effectiveness. This will be an adventure requiring much more than technical assistance from agronomists and soil scientists. Perhaps, dating from the "Year of the Big Earthquake", with the construction of the new country schools, the development of more closely integrated schemes of adult education, with closer attention to rural health and nutrition and more liberal financial credits and financing for landless persons with the will to work, with better facilities for storing and transporting produce and better guidance for small farm settlements that are actually in train or under consideration, there may emerge a new rural environment necessary for, and capable of, meeting the future needs of the rapidly multiplying Chilean population.

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Grateful acknowledgement is made to my colleague Arnoldo Mella of the Ministry of Agriculture, Chile, for permission to use some of his photographs, and to both the Government of Chile and the United Nations Organisation for permission to publish this résumé of the seismic disturbance in south-central Chile.

# Problems of Development in Fiji

R. F. WATTERS

THE Fijian problem is an intricate complex of several constituent elements: the precarious foundations of the economy, the cleavage of culture between Indians and Fijians, the rapid increase in the Indian population, the land tenure question, the low productivity and stagnation of the Fijian community, and the rising strength of Indian nationalism. The Fijian Government in 1958 appointed a commission to investigate these problems and to put forward a plan for economic development. This paper attempts to analyse the main elements of the "Fiji Problem", to consider how they are interpreted by Fijians and Indians, to discuss some of the more significant recommendations of the "Burns' Commission,"[1] and to elaborate in this context certain suggestions made by the author prior to the publication of the Commission's report.[2] The failure of the Fijian leaders to accept many of the recommendations of the Burns' Report also prompts this further survey.

## ECONOMIC INSECURITY

Most immediate in its need for remedy is the economic dimension of the Fiji problem, which underscores almost every other element of the problem. Along with other South Pacific Territories, Fiji is faced today with the need to accelerate the pace of economic development even if it is to maintain current standards of living. The relationship between population trends and economic development is most disturbing. The average annual rate of population growth between 1946 and 1956 reached the high figure of 2.91 per cent, while per capita income appears to have remained static. In the period 1936-58 population has increased by 80 per cent, while the volume of agricultural production has remained on the whole about the same with the exception of a 40

[1] Hereafter this will be referred to as the Burns' Report. Inevitably some of the ground that this paper covers has been dealt with already in the Burns' Report and the Spate Report (1959). However, wherever possible new material has been presented. The author gratefully acknowledges support provided by the University of New Zealand Carnegie Social Science Research Committee, which enabled field work in the Group in 1958 and 1959. A further visit was made in 1961.

[2] See *Evening Post*, Wellington, 14 November 1959; *The Guardian*, 27 November 1959.

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per cent increase in sugar cane production. Over the same period, imports of agricultural commodities that could have been produced in Fiji have increased 19 times. Only a sixfold increase in the prices of agricultural exports over these years has enabled the average annual income in Fiji to maintain itself at the modest level of about £(F)70 per head. At the same time, accelerated social change since the Second World War has led to a steady expansion in the aspirations and wants of both the Fijian and Indian communities—an expansion that has not been matched by an advance in their capacity to satisfy these needs. In short, the Fijian economy seems to be caught, at least temporarily, in a vicious circle in which several components interact in a relatively stable fashion. Thus small increases in national income over the last decade or two have merely generated a relatively greater increase in population, in the main by lowering the death rate. Since per capita income has remained low, the ability to save and the level of technical ability and credit facilities have also remained low. These factors have themselves acted as a check on the rate of innovation[3] which in turn retards the spread of productive entrepreneurial abilities. Thus economic growth in Fiji has not on the whole been an autonomous process. The injection of capital into the economy from outside and the rise of the sugar industry have induced irregular growth, but some of the variables later return to a relatively stable state and the economy as a whole does not steadily move forward to new positions. Thus institutionalised behaviour has been modified by only slight degrees. This view cannot be demonstrated statistically over a broad span of time, as statistics of the values of significant variables only date back to 1950; it is, however, supported by the results of an analysis of the structure of the Fijian economy.

## ECONOMIC UNDERDEVELOPMENT

In general the Fijian economy is characterised by a low level of per capita income, and manifests many of the economic, technological, demographic, cultural and political features[4] that are commonly attributed to underdeveloped economies. It is useful to examine Fiji's position a little more closely in this very broad category.

Between 1950 and 1957 the Fijian national income increased by roughly 3 per cent a year. However, population also increased at an estimated average of 3.22 per cent a year, so that the average per capita

[3] Over recent years the rate of innovation seems to have increased, with substantial progress being made in agricultural mechanisation in the sugar sector and also improvements in the public sector (e.g., long-term economic gains accruing from the Department of Works' roading programmes, etc.). An accelerated rate of innovation stimulated by the public sector, coupled with a fuller utilisation of existing land resources offers an important means of escape from the present position.

[4] Many authorities list these features: e.g., Leibenstein (1957): 40-1.

income, calculated at constant 1953 prices, remained stationary, varying between £66.60 in 1950 to £72.25 in 1953 and £67.55 in 1957. The Burns' Report assumes that national income will probably continue to grow at 3 per cent per year over the next decade, an assumption that means that with population growth at over 4 per cent in this period, the average income per head will fall slightly.

In several characteristics, Fiji has certain advantages over other underdeveloped countries. Poor, underdeveloped countries usually have 60 to 80 per cent of their population in agriculture; in Fiji only 58 per cent of the occupied population is thus engaged. An analysis of the economic sectors of countries over a long period of pronounced economic growth reveals substantial structural change: the proportion of the population employed in agriculture declines sharply by 50 or 60 per cent (say, from 70 to 15 per cent), manufacturing grows from about 5 per cent to perhaps 30 per cent, while the tertiary sector expands from 25 per cent or less to 50 per cent or more. In Fiji from 1946 to 1956 the agricultural sector declined by 5.62 per cent while the tertiary sector increased by 8 per cent to reach the figure of 34 per cent. Manufacturing, however, did *not* increase as expected; in fact, it declined from 9.47 per cent in 1946 to 7.01 in 1956. This decline in the proportion employed in manufacturing is a development of the most serious kind, especially in view of the fact that the increase in productivity in the agricultural sector has been practically non-existent apart from sugar. Viewed against these facts, the great expansion in tertiary services can be seen to be uneconomic and unsound—in part a spurious process that has accompanied the rise in export prices which has led many people to believe falsely that per capita wealth was in fact increasing. In recent years there has been a flight of foreign capital from Fiji which reflects the relative decline of manufacturing and growing awareness on the part of business interests of racial antagonism and labour trouble.[5]

## ECONOMIC PLANNING

In planning development for the next decade or two it is more practicable to accept the relative place of agriculture and industry[6] in the

[5] From 1953 to 1957, foreign investment declined by £(F.)3,397,000.

[6] The prospects for industrialisation are poor in a country with such a poor resource base, undeveloped power sources and suffering from a shortage of capital, while the most promising development in industry—the processing of local raw materials for local consumption can never reach sizeable dimensions in view of the small size of the local market (see Belshaw [1960]: 135). Expansion of the largest industries, sugar processing and copra crushing, seems likely to remain limited in view of Fiji's limited quota in world markets. Every effort should be made, however, to stimulate the process of industrialisation by attempting to develop tourism, fish canning, timber resources and exploit hydro power.

internal structure of the economy, while attempting to improve the productivity of each. Indeed this writer maintains that substantial progress could be made in agriculture if legislative action were taken to modify or remove Fijian cultural disincentives and to redesign an institutional structure suited to a mid-twentieth century, multi-racial, Fiji. At the same time, more support should be given to independent farmers on the one hand and to the co-operative movement on the other. Moreover, a considerable reduction in the expenditure of overseas assets could be achieved by producing locally many of the foodstuffs now imported (e.g., rice, meat, dairy products, potatoes).

TABLE 1

**National Product per capita, Share of Domestic Product Originating in Agriculture, and Proportion of Agricultural and Rural Population; Fiji and Selected Countries, 1952-54.**

| | Per capita net national product, factor cost (U.S. $) | Agric. share of domestic product % | Male workers in agriculture % | Rural population % | Disparity factor‡ |
|---|---|---|---|---|---|
| New Zealand | 1,000 | 24 | 22 | 39 | 1.1 |
| Puerto Rico | 430 | 20 | 47 | 60 | 0.3 |
| Panama | 250 | 34 | 58 | 64 | 0.4 |
| Portugal | 200 | 30 | 52 | 69 | 0.4 |
| Fiji | 187 | 55* | 53† | 56† | 0.7 |
| Jamaica | 170 | 46 | 70 | 78 | 0.3 |
| Philippines | 150 | 43 | 71 | 76 | 0.3 |
| Honduras | 150 | 50 | 83 | 69 | 0.2 |
| Ceylon | 110 | 53 | 51 | 85 | 1.1 |

*Notes*: *1953. †1956.

‡The disparity factor indicates the ratio between per capita income generated in agriculture to per capita income generated in other industries. It shows that within the Fijian economy, agriculture is relatively productive compared with industry. By world standards however, Fijian agriculture is not particularly productive: see table 2.

*Source*: F.A.O. (1959): 193; Burns' Report.

## CAPITAL ACCUMULATION

A basic handicap to economic growth in underdeveloped economies is the slow rate of capital accumulation. The problem usually involves forcing the investment rate from the characteristic figure of about 5 per cent of the national income up to a figure of about 15 per cent. Significantly, total investment has been unusually high for an underdeveloped economy, representing about 20 per cent of national income in 1957. In spite of such a high rate of capital formation, however, a

rate of income growth of only 3 per cent a year has been achieved.[7] This moderate rate of growth in spite of such a high input of capital can only be interpreted in two ways: firstly, the allocation of resources has been unwise, with too much capital being invested in unproductive fields, and secondly, the unfavourable institutional structure and unrationalised economic system have limited the effectiveness of this high rate of investment. On this first point, the Burns' Commission is clearly right in criticising the composition of Government investments and recommending among other things a decrease of expenditure on building and construction which apparently represented over one-third of total fixed capital formation in 1957.[8]

TABLE 2

**Yields per Acre, Fiji and Selected Countries**

| | Fijian Plantation Sector | Fijian Traditional Sector | | |
|---|---|---|---|---|
| Country | Sugar 1954-55 | Copra and Coconut oil Cwts. per acre | Bananas Tons c.1955-57 | Rice 100 Kgms. per hectare 1955 |
| Fiji | 2.4* | 4.4† | 1.6‡ | 15.7§ |
| Jamaica | 2.7 | | | |
| Cuba | 2.0 | | | |
| Puerto Rico | 2.7 | | 2.4 | |
| Australia | 3.5 | | 3.3 | |
| Western Samoa | | 7‖ | 6 | |
| Netherlands New Guinea | | 5.6 | | |
| Philippines | 2.4¶ | | .66 | |
| Malaya | | 4.2 | 5.4 | |
| Brazil | | | 11.5 | |
| French Equatorial Africa | | | 4.7 | |
| Japan | | | | 48.1 |
| China | | | | 54.7** |
| India | 0.8*** | | 4.7 | 12.6 |
| British Solomon Islands | | 9.6 | | |

*Notes*:

* In 1959-60 the Fijian figure was 3.2.
† Average 1956-58.
‡ Average 1955-58.
§ In 1953.
‖ Average 1956-59.
¶ Including *gur* low grade sugar.
** In 1954.
*** Including *gur* converted to raw sugar.

*Sources*: Commonwealth Economic Committee, *Fruit*, London, 1960; *Vegetable Oils and Oilseeds*, London, 1960; and *Plantation Crops*, London, 1956; Higgins (1959): 10; Burns' Report; *Annual Reports* of Various countries.

[7] Statistics are not available for a sufficiently long period of time to calculate incremental capital output ratios that would be reliable indicators of growth.

[8] Examination of various heads of expenditure in Government Current and Capital Expenditure also reveals that in the last decade the Department of Agriculture has not received more than the pitiful proportion of 3 per cent of the total moneys spent. While the high expenditures on Public Works (30.4 per cent in 1958) and Education (12.4) will in the long run assist the process of economic development, the total of only 7.1 per cent spent on all "Economic services" (Agriculture, Forestry and "Other") is woefully inadequate.

This paper will show, however, that the other explanation—the unfavourable economic environment of Fiji—is at least as significant in hindering the rate of economic growth. Serious deficiencies characterise the European and Indian sectors of the economy, but it is obvious that the greatest effort in the future will have to be made by the Fijian people. What is needed now is a "big push" to overcome such income-depressing forces as the surplus of labour and cultural barriers which inhibit sustained growth.

## POPULATION GROWTH

Population trends not only play a major part in contributing to the economic insecurity of the Colony, but also serve to exacerbate the problem in the field of race relations. Out of an estimated total population of 400,000 at the end of 1960 the native Fijian population comprised 41 per cent of the total and was increasing rapidly. The Indian population, however, first exceeded that of the Fijians in 1944, and since then the gap has been steadily widening. At the end of 1960 Indians represented nearly 49 per cent of the total population.[9] Indian birth rates are higher than the Fijian and death rates lower; Indian women marry younger, have their first children on the average three years earlier than Fijian women, and a higher percentage of female children or future mothers are born to Indian women. Fewer Indian women are childless, and a larger number of children are born to Indian mothers in each five-year age group. It is an augury of the future that over half of the Indian population is under 15 years of age with nearly half of the women in the child bearing ages between 15 and 45. On present trends it seems likely that the total population of the group will nearly double in the next twenty years, by which time the Indian population will exceed the Fijian by over 20 per cent.

The facts of population growth are disquieting on an objective view when considered in relation to racial antagonism. But even more distressing is the way these facts are interpreted by the two main communities. The submissions of both the Fijian Council of Chiefs and the representatives of the Indian people[10] provide an illuminating commentary on the racial question in their sharply contrasting assessments and recommendations. The Fijians express grave concern at the rapid increase of population in the Colony, claiming that

> ". . . there is a conspicuous lack of any organised endeavour by the Indian leaders and people generally to encourage among themselves methods of birth control or family planning; and, in the second place, there is the evident indifference among Indians generally to this most serious problem."

[9] The balance of the total population is made up by Europeans, part-Europeans, Rotumans and other Pacific Islanders, and Chinese.

[10] Council of Chiefs (1959); Indian Community (1959).

The view is expressed that it is "a clear moral duty of those who contribute most to this growth to display a sense of responsibility in controlling their birth rate". However, in advocating a birth control policy the Council of Chiefs is wise in not recommending its application to only one section of the population.

On the whole, the Indian representatives deny the existence of a "population problem", for they believe that the Colony is "much too underdeveloped and underpopulated", and that it requires many more people to develop it for the material and moral welfare of all settlers. On the socio-political ramifications of population growth the representatives declare themselves in unequivocal terms:

> "What in fact the community has taken an exception to is the political implication that the Indian people would dominate by sheer predominance of their numbers, and thus jeopardise the interest of other races in the Colony if the increase in numbers is not curbed."[11]

In evaluating the two contrasting viewpoints it is important to distinguish between the social and political implications of population growth on the one hand and the economic implications on the other. Unless the current racial antagonism can be greatly ameliorated it is clearly undesirable on grounds of expediency that one community should increase its numerical ascendancy over another; accordingly birth control should be actively promoted as an attempted check to the rate of growth.

The economic implications are, however, equally important. By all objective tests, Fiji is not overpopulated. The overall density of population in 1961 is only 57 people to the square mile. However, man-land ratios treated in isolation are of little value, for it is in the economy, rather than directly on the land, that population pressure is mainly felt. Demographers commonly assert that in a country with a predominantly agricultural population density should not exceed one person to two acres of cultivated land. On this basis the low overall density is converted to the remarkably high figure of 1.01 persons per acre of cultivated land, much of which can only be used occasionally under the system of shifting cultivation. In other words, population pressure can be said to exist *only* if we regard the present deplorably low area of cultivated land—8.4 per cent of the total area—as representing the maximum that can be utilised. However, the soil survey found that 29.87 of the total land area (1,356,471 acres) is suited to permanent agriculture with little improvement necessary, while a further 31.93 per cent (1,449,894 acres) could be utilised permanently after major improvements are accomplished. While opinions have been manifold about the extent and fertility of utilisable land,[12] these conclusions of a care-

[11] Indian Community (1959): para. 153.
[12] See Clay (1955): 3; Spate (1959): 1, 20; Ward (1959): 322, 341.

ful scientific survey cannot be gainsaid; while other resources are in short supply, Fiji has one great asset for expanding production. Why is the proportion of cultivated land so low? Partial explanations result from the shortage of capital and the lack of advanced technology, feeder roads, etc., but the most effective obstacles to land development have been the preservation of traditional attitudes toward the land, coupled with the system of land tenure and the Reserves policy.

## THE LAND QUESTION

Some of the implications of population pressure can be appreciated when one learns that four-fifths of the land is owned by two-fifths of the population. Absolute right of ownership were guaranteed to the Fijians by Britain in the Deed of Cession of 1874, five years before the Government began the introduction of the first Indians as indentured labour for the sugar plantations. Of the 3,776,000 acres that they own, only 379,600 (10 per cent) were cultivated by Fijians in 1957, and much of this can only be used under current techniques in a system of shifting cultivation, in which land is cultivated on a rough average for only one year in seven. In contrast, Indians own only 75,830 acres of freehold and lease a further 350,000 acres under various forms of tenure. Of this total 172,625 acres are cropped (41 per cent) and an unknown acreage used for grazing.[13] Thus the more numerous Indian population have access to a much smaller area of land, and their demand for land is accordingly much greater.

The question of land ownership has long been the subject of bitter dispute.[14] At its 1959 meeting the Council of Chiefs was greatly concerned lest the promises embodied in the Deed of Cession should not be honoured in the future. The Chiefs absolved themselves of any responsibility for changing conditions and declared that "The Fijians' rights and interests . . . which have always been acknowledged to be paramount must continue to remain so".

The Indian community on their side recall the British promise that their rights in the Colony would be in no way inferior to those of any other race. However, the Indians own only "a mere . . . fraction of the land" and commonly suffer from short-term leases, experience difficulty in securing or renewing them and receive no compensation when their land is taken over for Reserve.

The question of land holding is even more contentious than that of land ownership ,for the Fijians who own nearly all of the land contribute little to the main source of income,[15] while the more numerous Indian

[13] Figures from draft of Soil Survey Report of Fiji by A.C.S. Wright and I. T. Twyford and Burns' Report, paras. 85-87.

[14] See Mander (1954): 402-409, and Pim (1946): 77-87.

[15] In terms of the cash value of all export crops, the Fijians earned £2,088,415 for the Colony in 1957 compared with the Indian figure of £7,958,844. Wright and Twyford (unpublished manuscript).

population, living mainly in the dry zone, is increasingly being evicted or denied access to good sugar-producing land. In the sugar-producing dry zone of the two main islands (Viti Levu and Vanua Levu) the land problem is most sharply focused, for here Indians hold much of the land acquired earlier on lease from Fijian villages. In recent years the Fijians have become steadily more cash-conscious and as they emerge from traditional subsistence agriculture are growing more crops for the market. In order that they would actually hold enough of the land that they own to compete effectively with the Indians and so contribute to the developing economy, a Reserves policy was inaugurated in 1940. Under this policy certain lands were to be declared Native Reserves and were to be exempted from leasing again after current terms had expired. In their submissions to the Burns' Commission in 1959 the Council of Chiefs expressed their "fervent prayer" that nothing would happen now or in the future which would in any way impair their faith and trust in British rule.

The Indian representatives on their part, complain of Indians being dispossessed of their land due to reservation, only to see the land go out of cultivation. The representatives, however, apparently realise the futility of trying to oppose the basic principles of the Reserves policy, and instead press for leases to individual Fijians under secure conditions of tenure, and also recommend that the Native Land Trust Board exclude land from the Reserves with the consent of the native owners whenever an application for land is made by individual Fijians or by persons of other races.

Whatever the wisdom of the Reserves policy may be, Spate has noted that there is some risk that Reserves might become merely the "static defences of an inert garrison". Failure to use land formerly cultivated by Indians inevitably leads to dispute. Indeed it may reasonably be thought that the Reserves policy is an "over-protective device" that is not in the long-term interests[16] of the Fijians themselves as it effectively insulates them from Indian competition on the land.

Although the Burns' Commission rightly upholds the Deed of Cession which guarantees Fijian land ownership, it expresses grave dissatisfaction about conditions of tenure and utilisation. In particular, the Commission feels that "much of the anxiety and uncertainty" about land and most of the "sense of frustration" among farmers is a consequence of the Reserves policy. More deplorable is the fact that after twenty years the demarcation of Reserves is still far from finished—a delay that has resulted in the renewal of many leases on a yearly basis and the consequent depletion of the soil by robber farming. At the same time inadequate attention has been given to the parallel aim of making land avail-

[16] Some form of reservation for a short, limited period, would be very valuable if every effort were made to increase Fijian productivity to a comparable level with that of the Indians.

able for leasing outside the Reserves "to people of any race" so that the land hunger of the growing Indian population has been accentuated. Indeed land shortage is being expressed in rural underemployment. Thus the 1956 Census reveals that there was a total of 16,883 Indians connected with cane farming—some 6,000 in excess of actual production requirements. This immobilisation of labour may seem to be unusual in a country in which only 10 per cent of the land is utilised—a fact that eloquently demonstrates the obstacles to development that arise from the Colony's institutional structure.

As more and more of the fertile plains of the dry zone are cultivated by Fijians in the coming years their contribution to sugar production will be keenly watched. In contrast to the position of earlier years, most Fijian land in the dry zone (though not elsewhere) is now worked, for the Fijian chiefs fear for the preservation of their "paramount rights and interests" if land is allowed to lie idle. However, Fijian cane production is much lower than that of the Indians. In 1957, sugar provided 13.69 per cent of the net domestic product, and of the the total production, Indians contributed over 95 per cent and Fijians only 3.25 per cent. Between 1953 and 1957, Fijian cane yields were consistently below Indian yields, averaging 19.3 and 20.8 tons per acre respectively for Fijian and Indian tenants of the Colonial Sugar Refining Company, and 15.5 and 19.4 among the more numerous contractors. Only Fijian independent farmers, who mostly live outside the village, compared favourably with their Indian counterparts.

An overall assessment of productivity can be gauged by comparing the contributions of each community to the net domestic product of the Colony. While data is lacking on some aspects, it is clear that the Fijians contribute not more than between 30 to 40 per cent of the total agricultural produce compared to the Indian figure of over 40 per cent, the remainder being produced mainly by Europeans. In the nonagricultural sectors (50 per cent of the net domestic product) the precise contributions of the two ethnic groups cannot be measured, but it seems that Indian production of goods and services is only rivalled by the European community, with the Fijian share being quite negligible. In terms of the whole net domestic product, the total contribution of the Indian community in all sectors is more than twice as large as that of the Fijian community.

## LOW FIJIAN PRODUCTIVITY

The causes for low Fijian production stem from the persistence of many traditional (or quasi-traditional) patterns of culture to the present day. Before we examine the reasons for the slow rate of social change, it is necessary to consider the character of these traditional patterns of culture. These patterns evolved in an isolated island world to suit the subsistence needs of a people who were organised socially

into patrilineal descent groups with complex social relationships and kinship patterns and a system of political authority that was heirarchical and authoritarian in nature. This culture was admirably adapted to life in an oceanic, pre-Western environment; inevitably it was not adequate to face the problems of existence in a twentieth century, market-dominated world. An analysis of Fijian culture reveals the existence of many elements that demonstrate this inadequacy.

The greatest deficiency of traditional patterns of culture for modern economic development lies in the fact that, like many non-Western cultures, they evolved on the basis of a non-cash economy. While economic pursuits were just as basic as in a cash economy, the food quest assumed much less importance in everyday life due to the ease with which subsistence needs could be satisfied. In the absence of cash and commerce, the productive process was not market-oriented and so was never rationalised, as in the West, in order to increase output and maximise individual profits. Since economic activities were "submerged in social relationships", exchange took the form of reciprocity, not commerce, and accordingly a much smaller disposable surplus was produced. As the institutional framework expressed the structural characteristics of such a society and the ways in which it functioned, it not unnaturally failed to provide a suitable vehicle for economic development in Western terms. The systems of land tenure and utilisation reflected the basic principles of social structure and political authority and were characteristically those of a society with a local community emphasis. The solidarity of the forms of social organisation is expressed in the characteristic values that motivated social action.[17] Moreover, the maintenance or improvement of status ordained the ostentatious display and rapid consumption of goods, inhibiting the accumulation of wealth. While problems of real choice existed no less than in the cash economy, status and custom decided the way in which choice should be made. This tightly organised society was particularly cohesive, and with the coming of the West "the high degree of rigidity and formalism" that Geddes sees in the social system provided obstacles to social change.

The system of social structure was not attuned to the needs of the twentieth century. Western society was not surprisingly viewed "as an anarchist state of rabid individualism". Traditional forms of co-operative work often meant that over a certain period a person would obtain greater value in the form of goods or services from his kin than he would contribute in return. Individuals had little incentive to work harder than their fellows, for the only reward was the right to reciprocal service or an equal share in the produce of the group. Although in many situations today depersonalised economic relations involving money

[17] The kinship classification "set type attitudes and behaviours patterns" and largely determined "the ordering of interpersonal relations within the kinship setting". Nayacakalou (1955): 44-5 and (1957): 44-59.

payments do exist alongside traditional kin-based associations, it is clear that traditional principles often affect the efficiency of work done on a contractual basis. The calls that are made on the hard-won savings of many independent farmers are well known, and, although these are being increasingly resisted, the slaughter of working bullocks (the main capital equipment of cane farmers) is by no means uncommon to provide kinsfolk with meat for a feast.

The time spent in celebrating weddings, births and funerals has frequently been remarked upon by agriculturalists and economists. Another serious obstacle to economic development is the absence of specialisation of labour in village life. Of various tasks that are still generally done by group work, that of housebuilding is particularly time consuming and expensive. In Nalotawa, Mba province, the building of the chief's house in 1959 occupied all the men in the village for five weeks (i.e., about 500 man-days). These examples of traditional activities show that some provide serious disincentives to economic effort, while at the same time their persistence hinders to some extent the introduction of new incentives, economic and non-social in type.

## SLOW RATE OF FIJIAN SOCIAL CHANGE

Numerous observers have underlined the urgent need to accelerate the pace of social change in the Fijian way of life. In 1947 the famous Fijian leader, the late Ratu Sir Lala Sukuna, admitted "certain" weaknesses in the Fijian social system and declared that it would take years for the Fijians to catch up with the Indian standard of agriculture:

"If the paramountcy of Fijian interests—which this Council has subscribed to —means anything at all, the Fijians have the right to demand time in which to change their way of life."[18]

Thirteen years after these words were uttered the situation is virtually the same, but with population trends making it even clearer that the Fijians have even less time in which to change their way of life.

In recent years, Sir Geoffrey Clay, Carleen O'Laughlin and R. S. McDougall have all found that some of the obligations and sanctions of the communal way of life were out-of-date in a developing community in the second half of the twentieth century. In his report of 1959 Professor Spate has presented an even more impressive case for the speeding up of the rate of change, showing that "a people cannot contract out of the century it lives in". Finally in 1960 the Burns' Report speaks in unequivocal terms:

"We . . . feel that impact of Western civilisation has so far failed to induce a new outlook towards efficiency and productivity. Furthermore, traditional attitudes and behaviour in the rural areas, particularly among the leaders of the

[18] *Pacifc Islands Monthly*, December 1947.

people, are still a major obstacle in the way of technological change and there is a reluctance, if not a failure to grasp the present day economic situation."[19]

What are the reasons for the persistence of so many of the traditional patterns of culture that hinder economic advance in spite of the almost single-minded criticism of so many competent observers? In the first place, it is clear that the introduction of a money economy led to no rapid transformation of society partly because it was an indigenous crop—the coconut palm—that acquired a monetary value. Commercial production up to the present day has required little effort, merely involving an extension of traditional practices. As one Fijian aptly remarked to the Burns' Commission, "My coconuts say to me 'If you take care of us for four years we will take care of you for four generations'." Moreover, most exotic crops such as the banana have been so completely "contextualised" in their adoption into the Fijian agricultural system that no great disturbance or reorientation of agricultural practice have resulted. Indeed, it appears that an agricultural revolution will not be set in train in the Fijian countryside until there is a sustained demand for crops that require a more rigorous application of labour throughout the year, long term and more individualistic attitudes towards the land, a sharper perception of economic advantage, and a depersonalisation of economic activities that will free them from their socio-cultural trammels. To some extent these requirements are being partly met in a few villages engaged in sugar production (e.g., Nawaka near Nandi), but no widespread developments suggest that a general agricultural revolution is yet in sight.

A further explanation for the resistance to change arises from the way in which Fijian culture has reacted to the challenge of Western values and a cash economy by perpetuating some of its focal elements. This type of reaction is by no means confined only to Fiji. Thus strong group sentiments, based on the exclusiveness of local groups, have been staunchly upheld, at least until recently. Cherished ceremonial has retained much of its old vitality in some parts of the Group. Carleen O'Laughlin has noted that the development of wage-earning and cash-cropping and the concomitant tendencies toward individualism have been accompanied by a compensating "tightening of the formal code" which demands the individual's recognition of the community's primary option on his labour. The survival of *kerikeri* (the custom of asking a relative for some article that is needed) and various traditional obligations, mostly connected with the persistent social structure, may also be seen as evidence for this "perpetuation movement",[20] which has been the Fijian reaction to the challenge of Western values. The reintegration of Fijian society following the impact of the West in the nineteenth century was made possible by the continuance of the system of

[19] Burns' Report, para. 210. See also Stace (1954).
[20] Freed (1957): 55-67.

land tenure on a communal, clan basis. The clarification and legalisation of the traditional system provided a stable foundation that permitted the survival of many elements of the traditional way of life.

It is commonly recognised that social structure forms one of the most persistent group of elements in any culture in the course of change. Geddes has pointed out that a "unity of structural principle was a source of strength to the traditional society"—a unity and logical consistency that derived from the over-riding importance of the kinship principle in the whole system.[21] Moveover, through the functioning of the kinship principle, the same sets of people appeared constantly in the main fields of social activity—in economic, political, religious, ceremonial and recreational activities. Thus not only did mutually related principles reinforce one another in the system and give it a great deal of its coherence and solidarity, but the wide variety of functions that the various groupings (patrilineage, clan and phratry) regularly fulfilled gave the whole system much of its strength in its resistance to change.

Arising largely from the social structure and the role of individuals within it are those characteric Fijian "habits of mind" that Spate regards as important in explaining the slow rate of social change. These, he feels, are "too set for the people to come into the modern world quickly; moreover they have attempted to do so on their own terms." The unbending attitude of the Fijian people and especially of the chiefs (who have a vested interest in the maintenance of the communal system) has also hindered change—a reactionary attitude that is clearly expressed in the 1959 submissions of the Council of Chiefs to the Burns' Commission:

> "Much has been made in certain quarters in recent years that the very nature of cur communal way of life on which the village is based provides a disincentive to production above the subsistence economy level. The Council strongly disagrees with this view; *it has constantly given this criticism much thought and has not found any ground for its claim to validity.*"[22]

[21] In Fiji, kinsfolk were reckoned by the classificatory method, which involved an extension of the vertical and lateral ties found in the elementary family to embrace all members of the wider groups. Thus the strength of relationships determined by sex also operated in the lineage, those by age applied to other generations, and the unity of siblings extended to more distant kinsfolk. With patrilineal descent, patrilocal residence and common ownership of land in the patrilineal line, each agnatic group is a persistent and well-defined group.

The widest patrilineal descent group or *yavusa* is more commonly a "phratry" or grouping of *mataqali* or clans, each of which has a unitary descent structure. Beneath the exogamous *mataqali* which are the land owning units, are the *itokatoka,* smaller groups which may be termed patrilineages since the genealogical relationship of its members is known.

See Nayacakalou (1957): 50-1; Geddes (1959): 205-7.

[22] Council of Chiefs (1959): Para. 33. The italics are mine. The above analysis is another attempt to show the validity of much of this criticism, which Sukuna at least has admitted (see p. 166 above).

It seems then that the persistence of traditional attitudes and values, the strength of social structure, and the high degree of integration existing between patterns of culture have allowed many of them to survive the buffets of the modern world, even if in modified form. But without doubt the perpetuation movement could not possibly have succeeded without the powerful support and protection of the Fijian Administration—that autonomous administrative machine, divorced from the central government, that has jurisdiction over all Fijians in the Colony. This elaborate superstructure, erected in the interests of Fijians, performed a vital task in protecting them from Indian economic competition at an earlier period when it was sorely needed, and its various departments have aided and guided them in some aspects of economic advancement. But to many friends and well-wishers of the Fijian people, it seems that too much spoon-feeding leads to a dangerous dependence on the Administration—a dependence that is incompatible with the rising demands for a greater share of self government.

A bulwark of the communal way of life has also been provided by the Fijian Affairs Regulations, a simple code of civil and criminal law which seeks to secure "the continuance of the Fijian communual system and the customs and observances traditionally associated with that system". Spate has criticised the Fijian Administration for its uncritical attitude toward the requirements of development, "arrogating the right to be the *sole* judge in one's own case"; such a policy, he found, is "intolerable in the modern world". Recently, it has been noted that the Administration provides an obstacle to political advancement:

> ". . . because it represents an attempt to treat native administration as a part of government quite distinct from the general government of a colony in which the natives are already a minority. It also, even at the time it was set up, represented a step backwards to a conception of native administration abandoned in most other colonies."[23]

It is claimed by a defender of the system that it "has for seventy-five years proved to be practical and adaptable in the changing needs of world conditions", yet it has assimilated little beyond Western techniques of administration. Indeed the person who has made this amazing claim has elsewhere admitted unconcernedly that the Administration leaves "technical services and assistance to be provided by arrangement with the Central Government".[24]

The Burns' Commission regards the Fijian Administration as a completely exclusive and increasingly entrenched autonomous body that is divorced from the Central Government; moreover, it "tends to isolate the Fijians from all other communities", and continues "to foster an outdated communal system against the wishes of a large number of

[23] West (1960): 23-37.
[24] Roth (1953): 134, 160. See also Roth (1951).

people who desire a much greater degree of freedom". Evidence of this was provided in the large number of cases tried for failure to comply with the regulations for communal work—a number that exceeded 3,000 in 1958. Thus the administrative system appears to play a significant role in the Fiji Problem by perpetuating patterns of culture that function as disincentives to an increase in productivity.

## CULTURAL CLEAVAGE

The contrasts in productivity between the two main communities point up the contrasts between their respective cultures. We must now consider Indian culture, which in comparison with the Fijian way of life is characterised by very different values and interests and by a highly competitive market spirit. The Indians are not so closely tied to the culture that nurtured them, for on leaving India and after mingling freely with one another on board ship on the voyage out, many caste divisions were seriously weakened. Moreover, they came to the Group as individuals, not as groups of kinsmen or even fellow villagers. A dispersed pattern of settlement naturally occurred as blocks of land were leased according to individual choice, and the requirements of working dictated by the cane crop further weaned the settlers from the village-based, grain-growing life that they were accustomed to in India. In short, their culture was not adjusted to the Fijian environment, and although much of their rich cultural heritage has persisted without obvious weakening, different conditions in the new land caused many elements of their already uprooted culture to change. The result has been to make the Indians even more highly individualised people than they apparently were before arrival. Moreover, since the law prevented the Indian immigrants from owning land, the only economic incentives open to them were those of a money kind. In the early years of settlement low cane prices stimulated the Indian farmers to the utmost to earn enough to purchase such basic necessities as food and clothing. In view of these factors, it is not surprising that today a highly cash-conscious, competitive spirit characterises the Indian of Fiji, whether he is a cane grower, taxi driver, tailor or shopkeeper.

The greatest issue of all, however, would seem to be this—will originally separate cultures remain separate, or will the gulf between them be bridged? The magnitude of the gulf will be apparent from the quotations given above from portions of the respective submissions to the Burns' Commission. On the surface, however, the visitor to Fiji may well be impressed at the friendly relations that appear to exist between the two peoples. In the streets, the market place and on the buses the two races mix in friendly relationship. There is some cultural borrowing too from one group to another with respect to food, language and house types. All this is encouraging, but those who have lived with Fijians and Indians know that beneath the veneer there exists at best

an uneasy tolerance, a grave suspicion and mistrust between the two peoples.

In 1945 Geddes diagnosed attitudinal differences as basic to this aspect of the Fiji Problem:

"There has never been any mixture or community of interest between Fijian and Indian. Instead their attitude has been one of mutual disrespect, the Indian scorning the Fijian as lacking in intellectual quality and the Fijian despising the Indian for his physical inferiority. It can therefore be regarded as almost certain that in the years to come, disharmony between these two groups will greatly disturb the Fijian scene."

Geddes observes that there is a feeling among some Fijians that all other races in Fiji are really imposters—"strangers who have come to steal the natives' birthright". A few years later, W. E. H. Stanner noted the "harsh imperialism" of Indian attitudes to the Fijian, declaring that the most inveterate problem of Fiji "lies in the economics of Indian life in combination with a conservative culture, a violent demographic movement, and a rankling sense of political and social injustice".[25] The author found in 1958 and 1959 frequent expressions of an equally harsh imperialism of Fijians toward Indians. The view of one of his Fijian friends was typical: "We like Indians only in our talk and not in our hearts".

The only serious study that has been made of race relationships reveals a serious conflict between differing ideals as well as differing interests.[26] In classifying Fijian attitudes to Indians according to a five-point scale, A. C. Cato found that 63 per cent of the responses revealed an attitude of complete intolerance of the presence of Indians in Fiji, while a further 25 per cent expressed willingness for them to remain only under conditions favourable to the Fijians. On the subject of self-government in co-operation with the Indians a great majority expressed complete opposition, while replies were most unfavourable on the questions of a common educational system to develop inter-racial friendship and the possibility of Fijian-Indian business partnerships.

Cato's evidence of Indian attitudes towards Fijians is less systematic and objective; these he considers express the Indian's sense of superiority over the Fijian and his culture. While the Indian is often fairly tolerant toward the Fijian, it is sometimes a contemptuous form of tolerance. While chafing at his economic and political inequality he

". . . has a confidence born of increasing numbers, of industrial, commercial and agricultural success, of a conviction that he is indispensable to Fiji's future, and finally, of a twofold assurance, first in the growing international importance of India, his country of origin . . . and, secondly, in his British citizenship. He uses whichever of these two suits his purposes best at the moment."[27]

[25] Stanner (1953): 258.
[26] Cato (1955): 14-34.
[27] Cato (1955): 21.

Significantly too, intermarriage between Fijians and Indians is negligible, and the solidarity and identity of each people show few signs of weakening. In contrast to the growing assurance of the Indian community, the attitude of the Fijians, which appears to have been moderately tolerant a generation ago, shows no signs of any tendency to compromise and indeed is probably hardening.

## THE WAY FORWARD

This paper has shown that few bases exist for future unity in a harmonious multi-racial society. The economic activities of Indians and Fijians are different and are carried out separately, their cultural patterns are quite discrete, and the respective ideals and values that spring from each culture reinforce the identity of each by inhibiting intermarriage and a merging of interests. Many of the current inequalities and much of the institutional structure spring from these basic differences and further accentuate the pluralness of society. While Westernisation and urbanisation provide some sort of a social consensus between sections of the two peoples, the problem will become worse unless the Government takes early action to abolish institutions that reinforce division and establish new ones that will canalise the activities and interests of both peoples in the same direction.[28] These must be neither Fijian nor Indian—nor indeed precisely European—but must be new hybrids, especially suited to the needs of a whole Fijian people. In the first place the present policy of separate education for each community[29] must be drastically altered to a policy of multi-racial education, which would facilitate a greater interpenetration of culture patterns and a broader sharing of valued activities.

Secondly, the Fijian Administration must be gradually abolished and at the same time local government initiated in the provinces. The steady devolution of authority from Suva to local councils (a policy already announced by the Government and strongly recommended by the Burns' Commission) would put an end to the dangerous dependence of the Fijian community on the Administration. Equal representation of the two races in local government is the logical first step in preparing both communities for responsible self-government, which initially

[28] Some institutions such as trade unions have a membership confined largely to people of only one race. Their divisive role in society seems likely to continue as long as various ocupations remain the preserve of one race. A greater mixing of races in various occupations can come only as the result of enlightened educational and economic policies.

[29] In 1959 there were 326 Fijian schools compared to 153 Indian schools in the Colony, though only 53 of the former as against 100 of the later take pupils up to Class 8. Spate (1959): Para. 562.

should be on an equal basis. Indeed, the growing desire for self-government, although still not very strong, may turn out to be an important part of the solution of the Fiji Problem, for a self-governing democracy would seem to provide the best type of social framework in which a truly integrated society will be attained and anarchy avoided.

Thirdly, on the economic plane, it is clear that no stable internal peace will be secured if gross inequalities are indefinitely perpetuated. This means that "the paramountcy of Fijian interests" to which Sukuna referred must inevitably go, though it must be stressed that this should be a gradual process and part of a policy in which every effort is made to increase Fijian productivity to a level comparable to that of the Indians. Fundamentally, the politicians will have to find a politically acceptable compromise on the land question—which is at the base of the whole economy. In this respect there is much merit in the views of the Burns' Commission, which recommends that greater security be given to Indian tenants[30] and that taxation be levied on owners who fail to use adequately any land capable of use. But these hopes and the hope for accelerated Fijian social change seem to be increasingly unattainable as month after month goes by and the Fijian Council of Chiefs (who hold the key to the situation) maintains its reactionary stand, constantly harking back to the Deed of Cession. Indeed the essential factor needed to rescue the Colony from its dangerous situation is lacking—strong, enlightened leadership. One looks in vain for the emergence of a Fijian Nkrumah.[31]

Political advancement should be accompanied by a marked acceleration of economic development, for the Colony's precarious balance of trade remains the most serious and immediate of all aspects of the problem, especially in view of the present saturation of the world's cane market. What is required is a comprehensive development plan that will build in detail on the excellent programme conceived by the Burns' Commission, and estimate the role of all inter-dependent sectors of the economy in the decade ahead. In particular, the Commission suggested that agriculture should be reoriented towards a more mixed type of farming, in which sugar should no longer be grown as a monoculture and cattle and cocoa be farmed in association with coconuts. A vastly expanded coconut replanting scheme is called for, and also the encouragement of Robusta coffee and the establishment of a

[30] The granting of 99-year leases to Indian farmers would give them much more security and yet not violate the Deed of Cession. The Burns' Commission recommends 60 years or 99 year leases where tree crops are involved.

[31] *The Pacific Islands Monthly*, May 1961, pp. 33-6, takes an even gloomier view of the situation. Much of this article was written in August 1960; in the ensuing year little has been done to improve the situation, which accordingly has worsened.

pilot scheme for tea in Vanua Levu.[32]

The fashioning of a viable economy in which growth should be self-perpetuating involves finding finance of the order of £13 million sterling to close the gap between the estimated resources available and what is required. But it also requires major changes in the various components of the economy, which involve most of the elements of the Fiji Problem, for the processes of economic growth derive their momentum from the functioning of these inter-dependent components. Thus it is hoped that the promotion of birth control measures will slow down population growth, the component that is changing most rapidly in the current situation and which aggravates the effects of all the others. Moreover, it must be remembered that any development plan will have to operate in the institutional environment of Fiji; its ultimate success and the amelioration of race relations may well depend on the extent to which it can help to refashion that environment. Without institutional change and Government-sponsored action it is useless to expect the Indians to control their own numbers and freely give up cane growing for mixed farming; equally the Fijians will not free themselves of disincentives still existing in their culture as long as the institutional structure continues to insulate their society from the influence of economic forces. Institutional change is imperative to permit freedom of economic enterprise, to facilitate much-needed capital formation and investment, and above all, to liberate valuable land resources from the social groups in which they are at present locked up. In short, social change must precede or accompany economic change if Fiji is to reach her economic or political "take-off stage". This is the reason for considering economic development in its Fijian context as being almost as much a social as an economic process.

It would greatly help if the Fijian Government could view the problem in its true perspective. Thus it is useful to remember that the process of modernisation in Western Europe became possible only as a result of a weakening of the old nobility, the rise of a middle class, increased social mobility and the greater individualisation of society that accompanied the expansion of trade. The enclosure movement that followed this social change enabled the innovations of the ensuing agricultural revolution to be effective and the whole movement culminated in the

[32] Large-scale cattle and goat ranching have distinct possibilities in the hilly dry zone (especially if aerial top-dressing proves an economic proposition) while concentration on cattle breeding and dairy farming rather than the current ranching should also prove profitable in the lowlands. To these recommendations should be added the specification of a range of cropping systems suited to each land use region (e.g., the regions delimited by Wright and Twyford) from which it would be mandatory for each cultivator to choose. A considerable increase in timber milling is envisaged and one or two possible new industries such as fish canning may be additional money earners. The tourist industry showed its distinct possibilities in 1959 when it contributed over £1,000,000 to the national income.

spectacular transformation wrought by the industrial revolution. This pattern of development is not peculiar to Europe: the recent transformation of the rural landscapes of Kenya described by Elspeth Huxley[33] shows how an enclosure movement following social change in a non-Western society can set in train a full scale agricultural revolution. In the same way once the props were removed in Fiji, society would soon be ready for a programme of consolidation of holdings and a further individualisation of production—a chain reaction process that would culminate in substantial agricultural and industrial progress.

In conclusion, it should be realised that whatever happens in this small island group in the years ahead, the Fiji problem and the principles involved have wider relevance in the world at large. Much could be learned from the experience of Tanganyika and other multi-racial countries. This group, however, is more than an interesting social or economic laboratory in which a significant series of experiments is, or rather should be, taking place. It is primarily a land of living flesh and blood, of men, women and children whose lives are threaded together in dark patterns that threaten to engulf them. If the solution is not found, it is no exaggeration to say that we may have something like a Cyprus in the South Pacific. Already there have been two recent danger signals—the December 1959 riots in Suva, and the sugar dispute between cane growers and the Colonial Sugar Refining Company in August and September last year.[34] Little hope remains for Fiji unless all racial groups, and especially the Fijians, act now, with vision, resolution, and self-sacrifice to subordinate their narrow, sectarian interests to the interests of the Fijian nation as a whole.

[33] Huxley (1960).

[34] Although these two emergencies had their particular causes that sparked them off, their true significance and many of their underlying causes can only be understood in the context of the whole Fiji problem. The deterioration in race relations was marked in both crises, and in the sugar dispute fears were expressed that local forces would not be adequate to prevent violence and maintain order. In opposition to the Indian growers, the Fijian Council of Chiefs declared in August that "Fijians stand ready to assist in the preservation of law and order and in the protection if necessary, of cane growers who are prepared to harvest their crops".—*The Fijian Times*, Suva, 29 August 1960.

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# Coal Liquefaction in Japan in World War II

SIDNEY KLEIN

## THE 1930s IN JAPANESE HISTORY

IT is a common saying that necessity is the mother of invention. If this is true then the development of coal liquefaction techniques and facilities in Japan had decidedly normal origins. Japan in the 1930s was (and still is) a poorly endowed country. With a land area of only 147,000 square miles—about that of California—and a population of over 65,000,000 which was growing at the rate of over 850,000 a year, it was seriously deficient in many natural resources: most notably arable land, metallic minerals (especially iron ore) and fuel and energy sources. With respect to this last major type of deficiency, of the five major sources of inanimate energy—coal, water power, wood, petroleum, and natural gas—it was critically weak in the last two.

The shortage of petroleum was an especially serious matter for a densely populated island nation heavily dependent on imports of raw materials and the export of manufactured goods in its own oil-burning ships. It was intensified still further by the ambitions of Japan's leaders, who as early as 1931 embarked on a program of political and economic expansion designed to create ultimately an "Asia for the Asians" (i.e., the Japanese). Their military preparedness plans in the 1930s called for the rapid and complete industrialisation of Japan and self-sustenance in all major supply matters, including especially petroleum products. However, from 1930 to 1937, the production of crude oil in Japan never exceeded 12 per cent of consumption;[1] it was 1/700 of U.S. production and 1/1000 of world production. Japan ranked twenty-second among the oil producing nations of the world[2] and was clearly embarrassingly dependent on imports from the United States and Indonesia (then the Dutch East Indies).

As a result of this situation, Japan's leaders took two steps designed to remedy both the contemporary shortage and the expected future shortage of fuels and lubricants. Their first step was to establish a large stock of crude and refined oil. By December 1941, they had accumulated

[1] S.C.A.P. Natural Resources Section Report No. 107, 1948, *Petroleum and Natural Gas Production in Japan, 1946 Fiscal Year,* Tokyo.

[2] Cohen, J. B., 1949, *Japan's Economy in War and Reconstruction,* Minneapolis, pp. 133-4.

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43,000,000 barrels. Their second step was the establishment of a synthetic fuels and lubricants industry. It is with this second programme that this paper is concerned. The function of this paper is to evaluate the development of the Japanese synthetic fuels and lubricants industry during the Second World War with respect to technological progress made, costs incurred, and the lessons offered to underdeveloped nations. However, before considering the economics of the problem, let us first consider some of its technological aspects.

## PERTINENT TECHNICAL INFORMATION

The generic term, "coal liquefaction" covers the following distinct processes:

(1) Low Temperature Carbonisation (L.T.C.). In simple non-technical language, this refers to the distillation of coal to produce many products, some of which are "final" type, ready for final consumption (e.g., household fuels), and some of which are of an "intermediate" type used in more technically advanced processes (e.g., coalite or semi-coke, an important substitute for coal in coke ovens in Japan). Technically L.T.C. plants do not produce synthetics as the products are not the result of synthesis but rather are the result of distillation. Nevertheless, because of their qualitative and quantitative contributions to coal liquefacation they are classed as part of the synthetic fuels and lubricants industry.

(2) Direct Hydrogenation. In this process, coal, coal tar, or shale oil distillates (all three are alternative raw materials in order of desirability) are reacted with hydrogen at high temperatures and at high pressures.

(3) The Indirect Gas Synthesis or the Fischer-Tropsch (F.T.) process. Coal (or as an alternative, natural gas) is gasified. The resulting synthesis of carbon monoxide and hydrogen is treated under strictly controlled conditions with certain catalysts (e.g., cobalt or thorium) at moderate or atmospheric temperatures.[3]

These three processes complement rather than compete with each other. L.T.C. plants can be and have been used to: (a) produce coalite for use as domestic fuel, in commercial gasification processes, as a charcoal substitute in portable gas-producers on automotive vehicles, and as a substitute for low volatile coal in the manufacture of metallurgical coke; (b) produce and refine coal tar to obtain motor gasoline, semi-diesel oil, and bunker fuel oil, and coal tar suitable for use as a substitute for harder-to-handle coal in the direct hydrogenation process; and (c) produce tar acids, paraffin, naphthalenes and other products used in the chemical and other industries.

The hydrogenation process yields fuel, diesel, and lubricating oils,

[3] British Ministry of Fuel and Power, 1947, *Report on the Petroleum and Synthetic Oil Industry of Germany*, London, Section B, C, D.

and aviation and motor gasoline. The German Bergius process of coal hydrogenation yields an aviation fuel of especially high octane number.

Fischer-Tropsch plants produce low quality motor petrol, lubricating oil, high quality diesel oil, solid wax, and a large number of products used as raw materials in the chemical industry such as synthetic fats, detergents, and alcohols. It is possible to improve the quality of the petrol via secondary and tertiary processes, but this is extremely uneconomical even by synthetic fuel and lubricant industry standards.

Thus, in an economy based on synthetic fuels and lubricants the hydrogenation process would be used to turn out high quality aviation fuel, motor petrol, and ordinary diesel oil; F.T. units would be used to make high quality diesel oil and raw materials for further chemical synthesis; and L.T.C. plants would produce fuel oil, coalite, coal tar, and raw materials and supplies for chemical and other industries.

Given the possibilities noted above, it was only natural that Japan should consider the manufacture of synthetic fuels and lubricants from coal. While total coal reserves in Japan were estimated at less than 17 thousand million tons, at her then current rate of consumption they were sufficient to last for several hundred years and Japan was a net exporter of coal.

## THE CONSTRUCTION AND OPERATION OF COAL LIQUEFACTION PLANTS IN JAPAN

In 1937, Japan passed the Synthetic Oil Industry Law. This marked the beginning of a seven-year plan with a production goal of 14 million barrels of synthetic oil annually, or nearly six times Japan's home production of crude petroleum in 1937. Ten Hydrogenation, eleven F.T., and sixty-six L.T.C. plants were to be completed by 1943. In fact, by September 1945, four Hydrogenation, four F.T., and fifteen L.T.C. plants had been completed; one-third of these twenty-three plants were outside the Home Islands. In addition, eight L.T.C., one F.T., and two Hydrogenation plants were in various stages of construction.[4] Fifty-five per cent of capacity was in Manchuria, 29 per cent in Japan Proper, 11 per cent in Karafuto, and 5 per cent in Korea.[5] As the accompanying table indicates, maximum annual production attained was 1.5 million barrels in 1942, less than 90 per cent of the quantity of crude petroleum produced by Japan in that year.

Four to ten tons of coal, depending on the grade used, were required to make a single ton of synthetic gasoline. "Fifteen times as much steel was required for synthetic oil plants as for crude oil

[4] S.C.A.P. Natural Resources Section Report No. 74, 1947, *Low Temperature Combustion of Coal in Japan*, Tokyo, p. 85; Pauley, E. W., 1946, *Report on Japanese Assets in Manchuria to the President of the United States*, Washington, pp. 170-83.

[5] Cohen (1949): 140.

TABLE 1

**Japanese Crude Petroleum and Synthetic Oil Petroleum, Inner Zone, 1937-43 (Thousands of Barrels)**

| Fiscal Year | Synthetic Oil Production | | | Actual Home Crude Petroleum Production (c) | |
|---|---|---|---|---|---|
| | Planned (a) | Actual (b) | b / a = % | | b / c = % |
| 1937 | 550 | 31 | 6 | 2,470 | 1 |
| 1938 | 920 | 69 | 7 | 2,465 | 3 |
| 1939 | 3,073 | 135 | 4 | 2,332 | 6 |
| 1940 | 5,847 | 150 | 3 | 2,063 | 7 |
| 1941 | 7,816 | 1,222 | 15 | 1,491 | 63 |
| 1942 | 11,368 | 1,501 | 13 | 1,690 | 89 |
| 1943 | 14,046 | 1,048 | 8 | 1,814 | 58 |
| Total | 43,620 | 4,156 | 9 | 14,325 | 28 |

*Source*: Planned production from Synthetic Oil Industry Law of 1937; actual synthetic production figures from Imperial Fuel Industry Co.; crude petroleum figures from Japanese Army-Navy Oil Committee, Cabinet Planning Board, Fuel Bureau of Munitions Ministry; all data as reproduced in Cohen (1949): 134, 137.

refineries."[6] Therefore, in locating sites for synthetic fuel and lubricant plants between 1937-45, three major factors required consideration: (1) the nearness of large supplies of coal; (2) the presence of large reliable transportation facilities; and (3) the nearness of large supplies of steel.

Her synthetic lubricating plants were located in or very near the coal, transportation and steel centres of northern Kyushu, western and eastern Honshu, southern Hokkaido, Karafuto, and North Korea, as the tables in the Appendix indicate. All the plants listed in Table A were suitable for the production of synthetic ammonia for use in fertiliser manufacture, and by 1948 several were being utilised.

The Japanese were very anxious to assure themselves of a reliable source of aviation fuel. Because hydrogenation was then the largest and cheapest commercial source of it and they were far from successful with their own hydrogenation process, they attempted to obtain patent rights to the Bergius process and technical assistance from the Germans. Negotiations dragged on and it was not until 1945 that they succeeded in accomplishing this—too late to be of any value to them.

## THE GERMAN EXPERIENCE: A SHARP CONTRAST

Germany was the first nation to liquefy coal and up to perhaps 1949 was the most technically advanced in this field. Unlike Japan, Germany had more than ample home sources of high quality bituminous coal, but like Japan was troubled with a petroleum shortage, only 1.4 million tons of crude oil being refined in 1940. Her only important source of

[6] United States Strategic Bombing Survey, 1947, *Oil Division Final Report*, Washington, p. 15.

petroleum was Roumania, which could supply less than one-fifth of her war requirements, and even then the fuel produced from it was not satisfactory for use in aeroplanes. While the first patents for the liquefaction of coal were taken out in 1914 (and were of Bergius type), it was not until 1927 that the first plant was started, nor was it until 1933 that it was completed, and then only because of the stimulus of Nazi Germany's preparations for war.

Unlike the Japanese, the Germans were extremely successful in their attempts to liquefy coal. They had superior processes and better production techniques than the Japanese. The annual rate of production of the German Bergius type plants alone, 3.25 million tons, was nearly twice that of the natural petroleum resources of both Germany and Austria combined, and accounted for all of the aviation fuel, over 40 per cent of the diesel fuel, and over 30 per cent of the motor fuel available to Germany each year.

This large production came from a small number of plants, each Bergius type plant producing 200,000 to 700,000 tons annually. The division of processes and process technology were such that there were distinct economies of scale in their operation. Huge heavy compressors and reactors were constructed. Gases from the reactors were used as motor fuel and in the manufacture of high octane aviation blending agents, synthetic aviation lubricants and chemicals. Bergius type gases were also used to manufacture synthetic rubber.

The Fischer-Tropsch, like the Bergius process, was of German origin, and the rights on it were released to Japan in 1936, 11 years after the announcement of its discovery but only one year after completion of the first plant.

Again the Germans registered far more success than the Japanese. While the F.T. process accounted for less than 10 per cent of the synthetic fuels and lubricants produced in Germany annually, it did, however, produce a large quantity of other materials used in other industries, notably the chemical industry, where, for example, it was used to create synthetic fats and paraffin wax. The Germans found F.T. particularly advantageous because, unlike the Bergius process, which calls for giant plants spread over large areas, the F.T. process lends itself to small units which can be dispersed widely and made less vulnerable to air attack. In addition, the production process is so flexible that it can adjust rapidly to sudden increases or decreases in demand for a wide variety of products and thus avoid time and production losses.

The third method, L.T.C., was in many respects even more important in Germany than the F.T. process and ranked equal to the Bergius process in terms of value to its users. Both the Bergius and F.T. processes are fundamentally dependent on coal carbonisation and gasification. Besides accomplishing the vital function for the Bergius and F.T. type plants, L.T.C. plants supplied nearly one-seventh of Germany's annual oil production, including over 60 per cent of her fuel oil.

As would be expected, the plants were located near sources of coal and/or good rail or water transportation facilities—for example, on the Rhine and Elbe, in the Ruhr, and among the large coal deposits in central Germany.

## THE COST OF COAL LIQUEFACTION IN JAPAN

The context in which "costs" is used is important. In wartime, only the "real costs" are important. The coal, steel, manpower, and other raw materials used directly and indirectly in the production processes are compared to their alternative uses in, and value to, the war effort. In peacetime, when market prices for the finished product generally govern production, money costs receive prime consideration.

Coal liquefaction costs have always been high in both contexts. In Germany, where mass production of synthetic fuels reached their physical and technical peaks, four to 10 tons of coal (depending on the grade used) were required to make a single ton of petrol, 15 times as much steel was needed for synthetic oil plants as for crude oil refineries, and the manpower requirements were equally impressively large. Synthetics including coal tar distillation, accounted for over 68 per cent of Germany's annual fuel and oil production in early 1944, before Allied bombings became so effective.[7] At that time, about 200,000 workers were being employed to produce seven million tons of oil per year.[8] In the United States in 1939, some 270,000 persons engaged in the drilling, production, and refining of oil from petroleum, turned out more than 20 times as much. Thus, 35 per cent more people in the United States turned out 2,000 per cent more production simply because of the simpler production processes involved.

In resource-poor, technically-awkward, Japan, the real costs were even greater. Japan was (and still is) weak in such basic materials as coal, coking coal, iron ore, manganese, tungsten, cobalt, almost *ad infinitum*; almost all the essentials of heavy industry were in scarce supply from 1937 to 1943. In addition, her manpower resources were smaller and poorer. In 1940, her population was 72,000,000 against Germany's 80,000,000; further, a larger proportion of Japan's smaller population was in her rural areas. In 1938, 40 per cent of Japan's manpower was engaged in agriculture as against only 29 per cent in Germany. Thus, quantitatively, Japanese manpower assigned to synthetic fuel production drained a non-agricultural personnel reservoir nearly 25 per cent smaller than that of Germany.

Qualitatively, the difference was even greater. Japanese technical and managerial personnel on the whole were inferior to the Germans. They lacked industrial experience and professional *savoir-faire*, and this

[7] British Ministry of Fuel and Power (1947): 2.
[8] United States Strategic Bombing Survey (1947): 15.

was reflected in both the design of their production processes and everyday work on the production line.

Examples of high level technical and managerial fumbling are many. These include failure to account for the tensile strength of tin in the design and production of tin hydrogen peroxide-handling equipment; the use of coal which had a high propensity to cause corrosion and coal breakage in sections of water gas generators; the use of steam for regenerating catalysts (which lowers rather than increases catalyst activity); the designing of equipment to use higher quality coal than was available to Japan; and the failure in aviation fuel production via coal hydrogenation to average yields more than 25 per cent of German yields from the same process.

On the lower level of the production line, operators did not understand the complex structures of and relationships among various pieces of equipment and plants. Deterioration of electrical control systems through poor maintenance and stripping of irreplaceable key equipment to maintain relatively unimportant, more easily replaced equipment were typical reactions to the everyday problems of production. Such inefficiency added to the already high real costs of production and sent money costs soaring even higher above their usual uneconomic levels. At the Kirin coal tar hydrogenation plant in Manchuria, for example, it cost $.71 per gallon just to produce the coal tar,[9] to say nothing of what the cost of producing petrol from the tar would have been, had the plant been finished and mass production achieved. By way of contrast, in Germany petrol produced via coal hydrogenation is estimated to have cost less than 50 per cent of the cost of coal tar alone in Japan.[10]

## COAL LIQUEFACTION IN JAPAN AND ECONOMIC DEVELOPMENT

Both from a technical and an economic standpoint, wartime Japan's experience with coal liquefaction was an unprofitable one. Inadequate natural resources, insufficient competent technical and managerial personnel, war, and just plain bad luck combined to produce very poor results. If nothing else, a body of technical information of a negative character was added to the history of coal liquefaction technology, and from that point of view if no other, man in a broad sense, as well as the Japanese, moved forward.

In the case of Japan in the 1930s and 1940s, and underdeveloped nations generally in the 1960s and 1970s, aspirations concerning economic development are not enough. In addition to the basic resources needed for technological development, high quality technical

[9] Pauley (1946): 178. Conversion at the rate of 4.26 Yen to the U.S. dollar.
[10] British Ministry of Fuel and Power (1947): 8.

and administrative personnel at all production levels are necessary. It is not enough for the national government to direct that economic and technological developments along certain lines be pursued; equally importantly, personnel must be available who can recognise the limitations and requirements as well as the capabilities of the equipment. In short, if economic development is to be furthered by technological progress, then better, more responsive people as well as better, more responsive machines must be developed. The development of coal liquefaction in Japan in the 1930s and 1940s illustrates strikingly the problems which arise when only the latter are present.

## APPENDIX

### TABLE A

**Low Temperature Carbonisation Plants in Karafuto and Korea, 1937-45**

| Name — Location | Chief Factor in Location | Rated | Maximum Obtained |
|---|---|---|---|
| Teikoku Nenryo Kogyo KK—Naifuchi, Sakhalin | Coal | Gasoline refinery—315 bbl. per day; tar —2,516 bbl. per day | Coalite — 150,899 tons; motor gasoline — 1,351 tons; bunker fuel oil —25,843 tons; all in eighteen months, 1943-45 |
| Teikoku Nenryo Kogyo KK—Naihoro, Sakhalin | Coal | N.A. | Coalite — 611,481 tons; motor gasoline — 9,113 tons; gas oil—8,196 tons; semi-diesel oil — 25,876 tons; bunker fuel oil— 21,845 tons; all 1940-45 |
| Chosen Jinzo Sekiyu KK—Agochi, Korea* | Coal | N.A. | Gasoline—629 bbl. per year; liquid fuels— 123,787 bbl. in 1942; methanol—80,770 bbl. in 1944 |
| Nippon Chisso Kogyo KK—Eian, Korea | Coal | N.A. | Gasoline—58,604 bbl. of liquid fuel produced in 1942-45 |

* Plant had a hydrogenation plant in the experimental stage.

*Source*: SCAP Natural Resources Section Report No. 74, pp. 73-87.

TABLE B

**Synthetic Oil Plants in Japan Proper, 1937-45**

| Company | Location | Chief Factor in Location | Annual Capacity Prior to 1945 (Barrels of Crude Oil) |
|---|---|---|---|
| *L.T.C. Units* | | | |
| 1. Nippon Seitetsu | Muroran, Hokkaido | Coal, iron and steel centre | 44,030 |
| 2. Tokyo Gasu Kagaku | Yokohama Honshu | Joban Coal; port city; RR; consumers | 25,160 |
| 3. Nihon Yuka Kogyo | Kawasaki, E/Honshu | Joban Coal; port city; RR; consumers | 23,902 |
| 4. Toho Kagaku Kogyo | Nagoya, E/Honshu | Consumers; port city; RR | 25,160 |
| 5. Ube Kosan | Ube, W/Honshu | Ube Coal | 89,318 |
| 6. Nenryo Kogyo | Ube, W/Honshu | Ube Coal | 245,310 |
| 7. Nissan Ekitai Nenryo | Wakamatsu, N/Kyushu | Coal; port city | 207,570 |
| | | TOTAL .... .... | 660,450 |
| *Hydro Cracking Units* | | | |
| 1. Nippon Yuka Kogyo | Kawasaki, E/Honshu | Joban Coal; port city; RR; consumers | 8,177* |
| 2. Toho Kagaku Kogyo | Nagoya, E/Honshu | Consumers; port city; RR | 163,540 |
| 3. Nenryo Kogyo | Ube, W/Honshu | Ube Coal | 62,900† |
| | | TOTAL .... .... | 234,617 |
| *Fischer-Tropsch Units* | | | |
| 1. Nippon Jinzo Sekiyu | Takikawa, Hokkaido | Ishikari coal | 90,576 |
| 2. Nippon Jinzo Sekiyu | Amagasaki, E/Honshu | Joban coal; port city | 25,154 |
| 3. Nippon Jinzo Sekiyu | Omuta, Kyushu | Miike coal; port city | 90,576 |
| | | TOTAL .... .... | 206,306 |
| | | FINAL TOTAL .... | 1,101,373 |

* Gasoline † Gasoline Plant Under Construction

*Source*: Overseas Consultants, Inc., *Report on Industrial Reparations Survey of Japan to United States of America*, Feb. 1948, exhibit 11.1. Data converted from kilolitres to barrels at rate 1 kilolitre = 6.29 barrels.

TABLE C

**Synthetic Oil Plants in Manchuria, 1937-45**

| Name — Location | Chief factors in Location | Capacity Rated | Capacity Actual |
|---|---|---|---|
| *L.T.C. Units* | | | |
| 1. Japanese Army 2nd Fuel Depot—Chinhai, Liaoning Province* | Chinhsi coal; port of Hulutao; RR | 39,000 bbl. of tar | 22,000 bbl. in 1944 |
| 2. Coal Tar Hydrogenation Kirin Plant of Manchuria, Synthetic Petroleum Ltd.—Kirin, Kirin Province† | Yungchi coal; South Manchuria RR | Crude Methanol, 15,000 tons per year; tar, 10,000 tons per year; coalite, 130,000 tons per year | 8,400 bbl. of tar; 18,900 tons of coalite; both as of 1944 |
| 3. Tashihchiao Plant, S. Manchuria Mining Co. Ltd.—Tashihchiao | South Manchuria RR; port of Yungkou; Anshan iron and steel; magnesium | 6,000 to 100,000 tons of tar | None |
| 4. Harbin Plant, Sutan Ind. Co.—Harbin | South Manchuria RR | 4,000 tons of tar, 80,000 tons of charged coal briquettes | None |
| *Hydro Cracking Units* | | | |
| 1. Coal Tar Hydrogenation Fushan Plant‡—Fushun | Fushun coal; South Manchuria RR; Anshan iron | 130,000 bbl. of fuel per year | 28,000 bbl. of fuel in 1944; 500 bbl. of synthetic methanol in 1944 |
| 2. Manchu Research Institute for Coal Hydrogenation—Mukden, Liaoning Province§ | Fushun coal; South Manchuria RR; Anshan iron; availability of labour | 13,000 bbl. of aviation gas per year | None |
| *Fischer-Tropsch Units* | | | |
| 1. Synthetic Fuel Co. Ltd. —Chinchow, Liaoning Province‖ | Foushin coal; port of Hulutao | 30,000 tons of gasoline, diesel fuel and wax | 881 bbl. (of very poor quality) in 1944 |

* Depot contained also uncompleted petroleum refining facilities, a synthetic lubricating oil plant and many other auxiliary facilities. Originally cost $15.5 million.

† Also contained uncompleted direct hydrogenation (Bergius-type) equipment valued at $2.1 millions. Ninety-five per cent of the entire plant was stripped by the Russians.

‡ An experimental pilot plant for the hydrogenation of oil from coal tars. Original cost of the plant is estimated at $150,000; of which equipment worth one-third was removed by the Russians. Plant capacity was reduced to zero.

§ Its equipment was of German design and manufacture. Details of its construction were top secret. Soviet Russia removed all of its equipment and Japanese staff personnel and all records of plant design, operation, and cost. Total value estimated to have been $750,000 to $1,000,000.

‖ Begun in 1936 but not completed until 1944 because of the difficulty of transporting the equipment from Germany.

*Source*: Pauley, E. W., *Report on Japanese Assets in Manchuria to the President of the United States*, July 1946, pp. 170-183.

# Historical Aspects of Settlement in British Borneo

Y. L. LEE

## INTRODUCTION

In prehistoric times, and also to a certain extent today, the dominant geographical control in the peopling of British Borneo has been the massive compactness of the island of Borneo and its position in the Archipelago. Both features have contributed much to the sparseness of settlement in the interior, and peopling has taken place only along the coastal fringes. After the separation of Borneo from the mainland, the island remained isolated for a long period, during which time there were no important population accessions although the same population on the mainland was receiving further Mongoloid infusions. In modern times, too, Borneo has been isolated from the main seaways, and British Borneo at the northern extremity has always received the last faint ripples of all human migrations and influences. The early Indian and Arab infiltrations of the neighbouring islands affected the northern area but little and had only slight influence on the Sarawak and Brunei coasts. Similarly, the later European conquests dissipated their energies in the islands first encountered, leaving British Borneo untouched except for its coastal fringes.

Because of its position, it is doubtful whether the successive waves of Negrito, Australoid and Proto-Malay (Indonesian) migrations after the Ice Age (25-50,000 years ago) ever affected Borneo as they did other parts of the Archipelago. Hose [1] is of the opinion that Negritos did reach Borneo but Rutter thinks otherwise. No survivors of any Negrito stock have been found in Borneo and "it seems reasonable to suppose that had any Negrito tribes ever existed in Borneo they would have had better chances of surviving in the remote lonely forests of the hills, than in Malaya or the Philippines whither came wave after wave of settlers." [2] Others have suggested that circuitous land connections in this part of the world seem to offer the most likely means of Negrito distribution in the Archipelago and may account for their absence in Borneo while they are present in nearby Palawan

[1] Hose and McDougal (1912): 28.
[2] Rutter (1929): 20-21

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Islands. But whether or not Negrito tribes ever did exist in British Borneo, the present day peoples appear little influenced by these earlier peoples, either racially or culturally.

Since there is little evidence of earlier inhabitants in British Borneo, the last wave of peoples in the series of migrations into the Archipelago in prehistoric times — the Proto-Malays or Indonesians — can be taken as the aborigines of the country. These early ancestors of today's indigenous peoples are believed to have migrated from Asia, and belong to a branch of dolichocephalic Indonesian race prevalent in this part of the world. They are thus racially closely allied to most of the inhabitants of the surrounding islands and "their survivals are to be found in the Punans, Kenyahs and Klemantans of today." [3]

It is possible that the earliest of these settlers reached an uninhabited Borneo or one sparsely inhabited by small groups of peoples isolated by the break-up of Borneo from the mainland. They established their first settlements along the coast at estuaries, initiating a pattern which has persisted to the present. Later, with the arrivals of further immigrants, the early settlers and the weaker communities must have been displaced into the interior and there dwelt secure in their forested fastness. The Penans, nomadic Punans, Muruts and most of the smaller interior tribes, may represent the descendants of such groups displaced by later arrivals. These ancestral Indonesians (1-2,000 years before Christ) brought with them a technology of wood and stone implements. Others, having been influenced by fresh infusions from Asia in their island homes during the period when Borneo was isolated, were primitive padi farmers, using stone tools and the dibble stick with which they cleared the land and farmed. The methods of shifting cultivation which they introduced still continue in use in many parts of Borneo. And, until recent times, most of these peoples have lived for centuries untouched by the alien "invasions" that affected the rest of the Indonesian world since the days of the early Indian traders.

## EARLY INDIAN CONTACTS

During the early years of the Christian era, traders were active in much of Southeast Asia and were sailing particularly in the Malacca Straits. Borneo was also well within the Indian trading and later "colonization" movement, [4] but all early Indian settlements were remote from the northern part of British Borneo, being largely centered around the east and southwest of Borneo [5] where gold attracted foreign incursions. [6]

[3] Hose (1926): 3
[4] Sastri (1949): 16.
[5] Braddell (1941): 74.
[6] Braddell (1941): 2.

Braddell believes that there were very ancient Indian or Indianized kingdoms in the east, and that being so, it was inconceivable that the easiest coast to reach and the district which had important mineral wealth in the shape of gold, diamonds and other minerals and which by reason of its rivers and its fertility was most suitable for settlement, was not settled prior to the establishment of colonies in the east and southwest. He suggests "that among the earliest places in Malaysia settled by the ancient Indians must have been the region between the Kuching and Pontianak and the regions watered by the Kapuas and Sambas." [7] Quaritch-Wales, however, says that "there is reason to believe that there was no rich state in Borneo comparable to the famous neighbouring kingdoms that made a greater mark in history. Consequently, Indo-Bornean architecture may never have got beyond wood or semi-perishable construction. Stone or brick temples would probably have been discovered by now." [8] Whatever the case may be, it is likely that a great part of British Borneo, being away from the main trading areas, was little affected by Indian traders and settlers. In fact, existing evidence suggests that there were no large scale Indian settlements in west Borneo, [9] which was further away from the main stream of Indian trading and colonizing activities.

However, where there are traces of Indian settlement in west Borneo they have been found close to a tidal stream or on the low-lying area connecting the gold fields of Sambas and Bau. Practically all the objects and sites are on the Sarawak River system and the associated Samarahan River, in the Kuching area, or in the vicinity of Brunei. [10] It therefore appears that large scale activity by Indians went on only in Sarawak approximately a thousand years ago, [11] not reaching and affecting the northern part of the country at all.

During the heyday of the Buddhist kingdom of Srivijaya in Sumatra (c.800 A.D.) west Borneo was probably a favoured stopping place on the long voyage from India to China. British Borneo was subject to Srivijaya at that time. But after the rise of the Hindu-Javanese empire of Majapahit (c.1300 A.D.) most of Borneo came under Javanese influence and regular tribute was exacted from the British Bornean coast. However, there are no indications that Srivijaya had more than an ephemeral influence in British Borneo. On the other hand, indications of contact and influence from Majapahit are quite numerous and strong, [12] both through material objects and through legends and traditions which most probably emanated from Java. [13]

[7] Braddell (1941): 70.
[8] Quaritch-Wales (1949): 31.
[9] Harrisson (1949): 100.
[10] Banks (1947): 30.
[11] Harrisson (1955): 516.
[12] Harrisson (1949 B): 103.
[13] Hughes-Hallett (1940): 25.

The direct influence of both kingdoms on the settlement or the peopling of the country appears from existing evidence to have been small.

## EARLY CHINESE CONTACTS

Neither did early Chinese contacts leave any lasting marks on settlement in British Borneo. Between 600-1500 A.D. there are numerous references in Chinese dynastic histories to embassies from Borneo,[14] but no large scale settlement activities are mentioned, although excavations in the coastal zone of Sarawak have revealed predominantly Chinese occupation or trading during the early centuries of this millenium.[15] This Chinese period overlaps in time with the Majapahit era (c.1300-1500 A.D.) which was then followed by the coming of Islam.

Existing evidence does not make it possible to suggest anything more definite about Chinese influence in this part of the world prior to the fifteenth century. However, in the fifteenth century when there was much trading between China and Brunei, it was inevitable that some members of the trading expeditions should elect to stay in Borneo. There are records both in Brunei and Sulu annals that there was a Chinese Colony on the Kinabatangan River in the fifteenth century commemorated perhaps by the name of the river.[16]

Like the early Indian contacts and notwithstanding the many Chinese legends and names associated with the country, this early Chinese contact left little impression on the present day landscape. Not until the late nineteenth and early twentieth century did Chinese settle in some numbers and effect a change in the pattern of settlement. Harrisson sums it up well when he says that "probably in the past, as now, the main Chinese influence has been secular, artistic and economic during the Christian era. It is symbolic enough that one of the definitely Chinese legends in Borneo tells how the emperor's sons came to remove the jewel guarded by the dragon at Mount Kinabalu."[17]

## OTHER PRE-EUROPEAN CONTACTS

During the three or four hundred years before the coming of the Europeans, Borneo received from Malaya and other islands of the Archipelago colonists who settled mostly along the coasts. Although Malay colonization of Borneo was preceded by the Hindu-Javanese, the

[14] Braddell (1949 B): 5.
[15] Harrisson (1955): 512.
[16] Hughes-Hallett (1940): 27.
[17] Harrisson (1949): 100.

flourishing condition in which Brunei was found at the beginning of the sixteenth century, and the purely Malayan character of it, suggest that its origin was long before the final establishment of Islam in Java (1478).[18] These newcomers were seafaring people and confined their influence to the coastal and riverine areas. The northern part of British Borneo was most probably affected from two ends in the west by Malay influence and in the north by Sulu. The interior, however, was barely touched.

The fall of Majapahit and the arrival of Islam from Malacca saw the advent of several Muslim dynasties in Sambas, Soekadana, Landak, Bandjermasin and Brunei. The Sarawak and North Bornean coasts were subject to the Sultan of Brunei.

Thus, when the Europeans arrived, the coasts had long been occupied by Muslim people of Malay culture who were dwelling for the most part in villages along the coast or near estuaries. Those living on the west coast owed allegiance to the Sultan of Brunei and a number of minor rulers, local rajahs and pangirans, whereas the Sultan of Sulu had sovereignty over the northern part of the country.

At this time (1521), Pigafetta visited the island and gave a glowing report of the capital. He found a population of 25,000 families and the town built over water,[19] but no mention was made of other Bornean settlements. This favourable report was confirmed by earlier (1518)[20] and later visits of the Portuguese who also saw large numbers of Chinese settled along the shores and a considerable junk trade between Brunei and China,[21] a trade which was to die out with the advent of piracy in these waters and English and Dutch competition. This once considerable trade was dealt a mortal blow, but even at the end of the nineteenth century old docks capable of berthing vessels of 600 tons[22] were noted at Brunei. However, no signs of these remain, and the Chinese pepper gardens which extended right inland to the slopes of Gunong Mulu have long disappeared. The loss of this Chinese trade had severe repercussions in Brunei and

> "it prevented large bodies of annual immigrants from setting upon her shores; it deprived them of an opportunity of visiting the Bornean ports, and exercising their mechanical arts and productive industry; and of thus keeping up the prosperity of the country in the tillage of the ground, as well as in the commerce of ports. The old Chinese settlers by degrees deserted these shores."[23]

In fact the loss of this trade saw the beginning of Brunei's end.

[18] Logan (1848): 514.
[19] Hunt (1847): 3.
[20] Logan (1848): 514.
[21] Hunt (1847): 2.
[22] Hunt (1847): 3.
[23] Hunt (1847): 3.

## EUROPEAN CONTACTS

The arrival of Europeans therefore saw the steady decline of Brunei. The first on the scene to witness this decay were the Spaniards who might have annexed North Borneo and the whole of Brunei. Because of their proximity in the Philippines and Sulu islands, they were constantly in the vicinity during the sixteenth and seventeenth centuries. But, fortunately for Brunei, they were too occupied in subduing the Sulus and with the trade of the Moluccas to be actively concerned with Bornean territories. The Palawan islands, however, were eventually ceded to the Spaniards.

During the same period the Portuguese were also around Brunei, paying the town many visits in the course of their vigorous trade. But like the Spaniards, their interest was also in the Spice Islands and in the south. Whatever contact was made, was made purely as a trading proposition, although Hunt has pointed out that there are remains of two bastions and a stone fort in Brunei and one at Labuan built by the Portuguese.[24] On the other parts of the British Bornean mainland no indications of a similar nature are to be found. Like the Spaniards, the Portuguese did not leave any lasting effects on settlement in British Borneo.

Later arrivals of Dutch and English were more interested in the south and southwest of Borneo (Sambas, Pontianak, Sukadana and Bandjermasin) where pepper and diamonds attracted both Dutch and English traders. Trading settlements only were made in these ports, and all were eventually withdrawn. British and Dutch commercial interests at this time did not reach British Borneo at all.

Nothing more definite came about until 1763 when the English captured Manila and freed the Sultan of Sulu from Spanish hands. As a *quid pro quo* he ceded the whole of what is now North Borneo to the East India Company, the same territory which the Sultan of Sulu acquired in 1622 from the Sultan of Brunei as a reward for helping to quell a rebellion.[25] Even then it was not until 1773 that a British settlement was established in Balambangan Island north of Marudu Bay. The island was selected because it was thought to be a convenient halting place for ships plying between India and China and a strategic base protecting the flank of the China trade. It must be noted, at the outset, that British interest from then until today has tended to be concentrated for strategic reasons on the northern part of Borneo, while the Dutch for commercial reasons have concentrated on the south and southwest.

Balambangan was attacked by Sulus in 1775 and was abandoned. A second attempt to re-establish the settlement in 1803 failed and

[24] Hunt (1847): 3.
[25] Hughes-Hallett (1940): 33.

it was finally abandoned in 1804. Thus ended the first attempt at colonising British Borneo. No further attempts at colonisation by Europeans were made until the arrival of James Brooke in 1839.

## EXPLORATION

With the coming of Brooke's rule and the Chartered Company, and with the gradual annexation of territory by both, establishment of ordered government became rapid and satisfactory progress was achieved. Explorers were beginning to explore the country and in north Borneo young Englishmen were also penetrating and peacefully administering large provinces along the west and east coasts. As a result, by the late nineteenth century much more of the country's interior and coastal areas became known. Before that time, however, very little was known about the interior and even the coastal areas, a fact which was reflected in maps of the period before explorations began. Further knowledge came only with explorations which started earlier in Sarawak (1840s and 1860s) than in north Borneo (1860s). Such explorations are still going on today.[26]

Accounts of all these early exploratory journeys emphasised the importance of rivers as lines of movement. The routes, if they did not follow the stream course entirely, at least followed it for some distance until some suitable vantage point was reached for crossing the mountain divide. Witti in this third journey in 1882, travelled up the Kimanis to its source, thence over the Crocker Range, down the whole length of Pampang River into the Kiningau Plain until Limbawang. This is but one example of the numerous occasions when explorers had to take a route of this kind.

In Sarawak, the early explorers also depended entirely on rivers which still form the chief highways of the country today. Burns (1849), one of the earliest explorers, travelled up the rivers Tatau, Kemena and Baram and furnished information about the upper reaches of these rivers and also the first reports of the Kajang settlements along the Baram. [27]

Hugh Low (1848) explored the Sarawak river system and paid special attention to mineral resources. It was however, Spenser St. John who gave the most detailed reports of Sarawak and North Borneo. He travelled extensively over most of the second Division rivers and was the first European to be in the area. There were also his trips up to the source of the Sarawak River, the Baram, Limbang, Kanowit and Rajang which were well described by him. In addition, he travelled along the coast of North Borneo from Kimanis to Sibuco

[26] Harrisson (1959): 299-311.
[27] Logan (1848):

and climbed Kinabalu. He was not only able to record these travels but, from information gathered during these journeys, he also produced a map as well.

O. Beccari (1865-68) can be classed as one of the first travellers of Sarawak. He crossed the country through its whole length, traversing the basins of the rivers Bintulu, Rajang, Lupar, Sadong and Sarawak. He was, however, a botanist and his journeys did not furnish much new matter of geographical interest.

However, it must be noted that all these explorations were concentrated on the coastal stretches of the rivers, particularly those of the First and Second Divisions, which are the best known today. The interiors of the Third, Fourth and Fifth Divisions of Sarawak and the great southern interior of North Borneo were not penetrated by earlier explorers and today still remain the least accessible and known parts of Britsh Borneo. Recent explorations by Harrisson and Leach, [28] by geologists and other government officials have brought forth more information on these interior areas. [29]

Aerial photographs by the Royal Air Force have also helped to give a clearer idea and picture of the interior.

In the North Bornean explorations, however, greater attention was focussed on the Central High Plains, the northern and the northeastern parts of the country which form today the better known interior areas of the country. For example, Witti in 1880 began several journeys into the interior, marking the beginning of exploration into the High Plains when he reached Tambunan and Keningau in his first and third journeys. In his second journey he explored the northeastern part of the country crossing overland from Bongon in Marudu Bay to Sandakan using the Bongon, Labuk and Lokan rivers for most of the way.

Frank Hatton was the other great explorer of the country. Both he and Witti died in the course of their travels. Hatton (1881) concentrated on the northeastern area and pursued his task by following all the major rivers there very far up to their sources: Labuk, Kinabatangan, and Segama. Pryer also explored the Kinabatangan in the same year. By their journeys both these pioneers called attention to the fact that the rivers form excellent highways into the far interior of North Borneo.

Although many of the journeys into the interior were concerned largely with the geology of the area, [30] it is important to emphasise the fact that the opening up of stations in those remote areas and the

[28] Harrisson and Leach (1954): 65.
[29] Harrisson (1959): 299-311.
[30] Posewitz (1892): 56-69.

development of settlement owe much to the journeys of discovery by Burns, Low, St. John, Witti, Hatton, Pryer and others.

## BRUNEI

The Sultan of Brunei exercised only nominal control over his territories in North Borneo and Sarawak after the withdrawal of British interests. This control was largely exercised through the medium of Malay nobles who were unchecked in the exercise of their powers. Settlements were along the coasts and around river mouths, each under the overlordship of a feudal chief. These coastal settlements were in many cases pirate lairs and were hemmed in on one side by the sea where pirate fleets sailed the seas unchecked, and on the other, by the forested and mountainous interior where primitive, hostile tribes practiced headhunting.

Only when James Brooke arrived in 1839 was piracy dealt a mortal blow by ships of the Royal Navy. With the pirate menace over, the Sultan ceded Labuan (1846) to the English, an event which marked the end of early colonizing attempts and the beginning of modern British Bornean colonization.

Though the seas were clear of piracy, in the settlements along the coasts internal dissension was still marked, and kampongs were hostile towards each other. Central government at Brunei was still a shadow and taxes were collected by unscrupulous agents. The chieftaincies shaped around estuaries in Sarawak and North Borneo were under Malay nobles or governors who recognised no authority but their own, "an authority so abused that one by one the various districts became disaffected, some to the point of rebellion, and no longer more than nominally bore the yoke of Brunei." [31]

It was into such an atmosphere of lawlessness that James Brooke and the forerunners of the British North Borneo Chartered Company stepped. During the next half century there was a virtual partition of Brunei at the hands of Brooke and the Chartered Company, and thereafter until the Japanese occupation came the period when there appeared changes on the landscape large enough to be registered. The changes which took place during these first four decades of the twentieth century had a markedly greater effect on settlement than did all the earlier centuries of foreign incursions starting with the first Indians.

During the early years the indigenous population was small, roughly five to a square mile and estimated in 1890 at 160,000. [32] This scanty population was due to the absence of a central government and the presence of all forms of lawlessness. In more recent years, diseases

[31] Hughes-Hallett (1940): 85.
[32] Treacher (1890): 85.

such as cholera and smallpox have annihilated large numbers. These people "had little organization beyond that of a chief who controlled a few riverine villages. Over him was the absentee deputy of the Sultan of Brunei on the west coast, or the Sultan of Sulu, on the east, the possessor of the rivers. The Brunei lords in particular had each an agent controlling their allocated river, depriving the chiefs of nearly all authority and the people of all their sustenance." [33]

No large settlements were to be seen on the landscape, except perhaps the amphibious Brunei town which had seen better days. The large population of 40,000 with 30,000 Chinese pepper planters in the first two decades of the eighteenth century had dwindled to 15,000 in 1809. By 1847, there were only 12,000 and the Chinese had entirely disappeared. Nothing remained of its past glory and nothing was to change the settlement pattern during the latter half of the nineteenth century and the first decade of the twentieth, when the country was slowly but surely being annexed by Brooke in the south and the Chartered Company in the north (Fig. 1).

Brunei had practically ceased to be a viable political entity when the British Government established a protectorate over it in 1889. In 1906, a Resident took over most of the administration of the country, but even this did not bring about any remarkable changes on the landscape until the discovery of oil at Seria in 1929. It was not only a major event in Brunei's history and to its economy, but it also brought about vast changes in the population numbers and composition. Prosperity also saw the creation of new towns and the construction of roads and buildings throughout the country. The process of change as a result of this oil boom is still going on today, and the settlement pattern is fast being changed. But more than anything else, "oil not only has greatly increased the prosperity of the little state, it has had fateful consequences for all British Borneo, consequences swinging the area even more definitely into the great cross-currents of international affairs." [34]

## SARAWAK

When James Brooke was offered Sarawak Proper in 1841 after helping Rajah Muda Hassim to quell a rebellion, the territory under his control came to only about 3,000 square miles with a coast line of 60 miles and comprising roughly what is now the First Division. At this time, as along most of the Bornean coast, "nearly every district belongs to some particular family, which by usage possesses an almost unchallenged power over the people, and is thus removed from the control

[33] Tregonning (1958): 105.
[34] Country Survey Series (1956): 16.

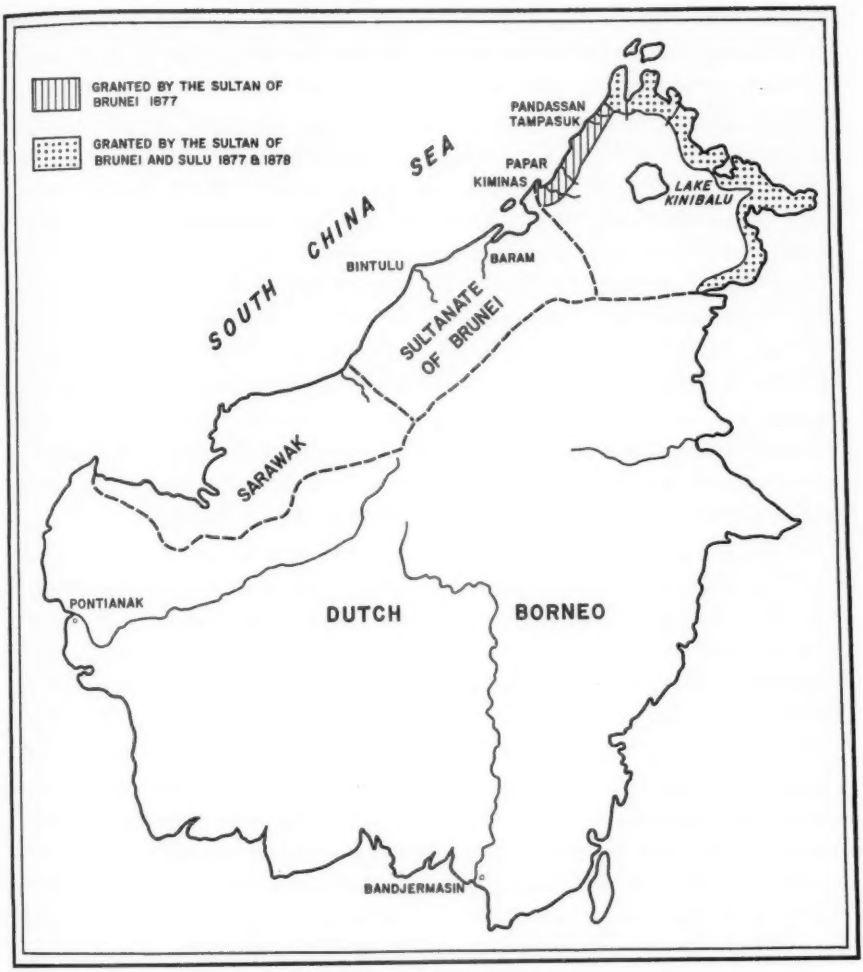


Fig. 1. Political Boundaries of Borneo.

of the Government. Many districts are divided among the various families who have each certain villages, and live on the amount they can obtain by taxes or forced trade." [35]

Population was estimated at between 10,500 inhabitants, consisting mainly of coastal Malays (1,500), Chinese traders and gold miners (1,000) and Land Dayaks (8,000) in the interior hills. [36] Kuching then consisted only of about a dozen crude huts, some with stockades, close to the muddy bank of the Sarawak River. It was very much a pioneer-looking place, untidy and transient, with a population of 1,000

[35] St. John (1863): 271.
[36] Rutter (1935): 308.

Malays and a few Chinese traders. Even then, it must be remembered that during the middle nineteenth century Kuching and Brunei were the only two large centres of population and political influence.

Besides the coastal Malay settlements and the isolated long-houses of the interior, the only other mark on the landscape was made by the Chinese gold mining settlements in the Bau area. When Brooke took over Sarawak Proper in 1841 there was already a sizeable Chinese population who had settled for generations and had come mainly from Dutch Borneo. These were principally gold miners and were organised under the Kongsi system.[37] With increased Dutch pressure on them and because of improved conditions in Sarawak under Brooke, Chinese came across the border in a continual stream in the second half of the nineteenth century, so that even as early as 1856 the gold mining centre of Bau was quite a bustling town consisting of one hundred shops and as many houses.[38] In all, there were an estimated 4,500 Chinese living in the gold mining area.

From the moment James Brooke took over the Sarawak territory, he and his successors concentrated in wiping out the scourge of piracy and headhunting practices. Such efforts resulted in security and peace, and also led to the territorial expansion of Sarawak and an increase in population. Between 1853 and 1861, Sarawak gradually extended its control over the entire country west of the Betong Rajang. Between 1861 and 1890, it completely acquired from the Sultan of Brunei all territories as far north as the Trusan. And finally in 1905, the Lawas basin was purchased from the North Borneo Chartered Company whose southward expansion and similar territorial acquisitions in the north had been looked upon with suspicion by the Brooke Government. The total result is that today only two small enclaves of land are left of the once proud kingdom of Brunei (Fig. 1).

## NORTH BORNEO

During the period when Brooke was busy suppressing headhunting and extending his territory, the west coast population of North Borneo at this time (1860s) were principally the Illanuns, Bajaus and Dusuns. All three groups were concentrated in roughly the same area. Illanuns had populous settlements on the Tuaran, Tempasuk, Pandassan and Layer Layer. Bajaus were scattered all along the coasts with principal settlements at Mengkabong and Tempasuk. Dusuns, on the other hand, were found in large numbers on the banks of the Tuaran. All these coastal groups on the west totalled no more than 50,000.[39]

[37] Spencer St. John (1863): 349-353.
[38] St. John (1863): 349, 353.
[39] St. John (1863): 381.

Into this setting came the first attempt at Western settlement on the north Bornean mainland. The American Trading Company of Hong Kong which had brought from C. Lee Moses a concession secured from the Sultan of Brunei and the Pangeran Tumongong, brought in 60 Chinese and 12 Americans to settle at the mouth of the Kimanis. This was "Ellena" the first "western" (American) settlement in North Borneo.[40] A stockade and a flimsy jetty were built while 90 acres were cleared for rice, sugar cane and tobacco. The settlement, however, stagnated and failed to prosper for "with hardly any money to buy food, and with very little rice stored in the settlement, slowly they starved."[41] A tombstone of the Secretary of the Company, Thomas B. Harris, at Kimanis is the only indication today of this early American Settlement (1866).

With this American failure, no further settlement attempts were made for another ten years. But in 1877 and 1888, Overbeck, Cowie and the Dent brothers succeeded, on annual payments, in getting grants of territory from the Sultan of Brunei, the Pangeran Tumongong and the Sultan of Sulu. This grant of land stretched from Gaya Bay on the west coast to the Sibuko River on the east, together with the Kimanis and Benoni rivers, some 28,000 square miles of land embracing 300 miles of coastline. This first acquisition of North Bornean land was to see the beginning of vast changes on the west coast landscape (Figs. 2 and 3).

This acquisition of land was followed by posting of men in strategic spots, Sandakan, Tempasuk and Papar, by a Provisional Company formed to run the country. But this acquisition by a shadowy British concern aroused protests from Spain, Holland, U.S.A. and Brooke of Sarawak. Nevertheless, the British Government with strategic considerations again in mind granted a Charter to the Company in 1811, because by so doing the flank of the immense British trade with China would be protected.

In spite of the large area under the Company's control, development was still difficult because of the many independent rivers forming enclaves embedded in Company territory, sources of irritation and inconvenience. The Company, therefore, from 1889 onwards until the end of the nineteenth century gradually annexed all the independent rivers owned mainly by these absentee landlords living in Brunei or by Chieftains. A few of these annexations were the result of punitive expeditions that the Company was compelled to undertake. The last enclave to be acquired was the Membakut district which was ceded by an independent chief in 1902. The expansion southward for a time came into conflict with Brooke's northward movement to annex Brunei.

[40] Tregonning (1954 A): 357-72.
[41] Tregonning (1958): 6.

## ECONOMIC DEVELOPMENT: SARAWAK AND BRUNEI

James Brooke had three objects in mind after taking over Sarawak: (1) the relief of the Land Dayaks from oppression; (2) the suppression of piracy; and (3) the suppression of headhunting practices. Although he was successful in achieving these objects eventually, they were not achieved immediately but over a period of years. The immediate results can best be summed up in Keppel's words: "In 1842, piracy, slavery and headhunting were the order of the day. The sail of a peaceful trader was nowhere to be seen, not even a fisherman, but along the length of this beautiful coast, far into the interior, the Malays and Dayaks warred with one another. Now (in 1867) how different. Huts and fishing stakes are to be seen all along the coast, the town of Kuching, which on the visit of the *Dido,* had scarcely 800 inhabitants, now has a population of 20,000. The aborigines, who called themselves warriors, are now peaceful traders and cultivators of rice. The jungle is fast being cleared to make way for farms." [42] The suppression of piracy also brought about an increase of trade, the tonnage of merchant vessels in 1852 having risen to 25,000 tons, whereas in 1842 the whole trade was carried on by a few native *prahus.*

The establishment of peaceful conditions and Brooke's policy led to large scale Chinese settlement in the upper Sarawak district around Bau where they worked the gold mines. Even after the insurrection of the Chinese in 1857, Brooke still encouraged Chinese to come into the country. There was a scheme for introducing Chinese pepper and gambier planters into Sarawak. This started in 1878-9 and was very successful, but the government wanted still more Chinese immigrants and did not understand why larger numbers had not availed themselves of the terms offered. Neverthless, the Chinese farmers were changing the landscape with their agricultural activities, a process in which they were helped by many of their gold mining compatriots who turned to farming when visible outcrops of gold gave up after 1857. The revival of the gold mining industry after the insurrection never reached its previous proportions, so that more and more Chinese turned to the more profitable occupation of pepper planting. And at the turn of the century "the mining district of upper Sarawak had been changed into an agricultural one — gold mining had almost ceased . . . whilst pepper gardens had sprung up everywhere." [43] Moreover, there was an improvement of the country's financial position, chiefly "due to the influx of Chinese, especially of gambier and pepper planters, who were attracted by the liberal concessions of land and monetary assistance." [44]

[42] Baring-Gould and Bamfylde (1909): 89.
[43] Baring-Gould and Bamfylde (1909): 436.
[44] Treacher (1890): 69.

Brooke's administration also led to the growth of Kuching. In 1848, it was a small place with a few Chinese and Indian shops, and not over 1,000 Malays in the outskirts. There was little trade, few native *prahus* and the jungle hemmed in the houses. The Chinese gardeners and farms had not yet made any impression on the place. With the growth of confidence and establishment of peaceful conditions, the town grew and by 1865 its population was no less than 15,000. [45]

From these humble beginnings, Kuching has steadily grown to become the capital and chief port of Sarawak. Its early start and fortunate choice as the town and port of Brooke's Sarawak Proper, its position as the port of entry of Chinese immigrants, and its initial Malay population have all helped to maintain Kuching's position as the largest town in British Borneo.

Sibu, the second town and port of Sarawak, had a much later start, being founded by Chinese immigrants only in the first decade of this century. Despite its recent foundation, it is fast becoming an important rival of Kuching. Being the port of entry for Foochow immigrants during the first few decades of the twentieth century, it is now largely a Foochow Chinese town and is also the focus of the Lower Rajang area.

During the same period when Sarawak was expanding and economic progress was being made, Brunei, on the other hand, was languishing and on the decline. In 1847, of the once flourishing town, only 12,000 remained and the Chinese population had almost disappeared. Docks capable of berthing vessels of 500-600 tons were still to be seen in Hunt's time but have long disappeared. [46] Baring-Gould and Bambylde record in 1909 that "on the picturesque hills that surrounded the town are still to be found traces of thriving plantations which formerly existed there, and which extended for many miles into the interior. These have totally disappeared with the population which cultivated them." [47] Today, only the little that remains of Kota Batu [48] stands as a reminder of its glorious days gone by.

Right up to the turn of the century there was, therefore, very little in the nature of economic development in both Sarawak and Brunei. Brunei, though independent, was in a state of bankruptcy and decay. The Brookes on the other hand, had spent most of this time in suppressing headhunting and piracy and in establishing law and order. During the 50 years of Brooke rule, there was no introduction of economic schemes comparable to the North Borneo railway project, nor did the Brookes attract large scale investment into the country.

[45] St. John (1863): 309.
[46] Hunt (1847): 5.
[47] Baring-Gould and Bamfylde (1909): 44.
[48] Harrisson (1956): 283-319.

The White Rajahs were more interested in attracting peasant agriculturists rather than big investors. This early policy is reflected today in the absence of large plantations and other large scale organisations and also in the presence of large numbers of immigrant agriculturists in the country.

Although there was immigration during these years, it was the coming of rubber in the first decade of the twentieth century and the discovery of oil in Miri in 1910 that were to draw in the immigrants who have done much to change the landscapes in the Kuching, Sibu and Miri districts. In Brunei, it was also the discovery of oil at Seria in 1929 that revived the country and which has been responsible for the changes that are still going on.

## ECONOMIC DEVELOPMENT: NORTH BORNEO

Despite the coming of the Chartered Company and the return of peaceful conditions, population was still small, numbering less than 100,000.[49] In order to attract capital and settlers into the new country, very favourable immigration terms were offered. Active steps were taken to secure Chinese immigration to supply labour, and large numbers of Chinese began to pour in both from China and Singapore. This immigration measure was not successful and many returned. Nevertheles, communities were established at Kudat and Sandakan, the two ports of entry for the Chinese which still thrive today.

Kudat was newly discovered in 1881 and was made the first capital. High hopes were entertained for Kudat, since in its strategic position it was hoped it would not only attract the coastal trade of both flanks of Borneo but would also act as a stopping place for boats sailing between Europe and China. These hopes, reminiscent of Balambangan and Labuan fifty years before, did not materialise. A small town grew there, and was, and still is, a sleepy hollow.

In 1883, the capital was, therefore, moved to bustling Sandakan which had been founded by Pryer in 1879.[50] The original village had been accidentally burnt down, and Pryer moved down to the harbour entrance and founded Elopura, Sandakan's early name. It became and remained the chief town of the territory until after the Second World War when Jesselton became the seat of administration. But today, Sandakan is still the principal trading centre. Its excellent harbour and the commercial potentialities of the East suggest that Sandakan will remain the commercial capital for a long time to come.

The energetic way in which Pryer tackled the piracy problem and the enthusiasm he put into his town soon brought in both Chinese

[49] *North Borneo Census Report (1891).*
[50] Tregonning (1954 B): 35-50.

and natives and also revived a considerable trade in jungle produce, timber and birds' nests. While the west coast was still busily engaged in acquiring land from the independent chieftains, the Company concentrated on the northeast coast with its trade centred at Sandakan, and later on tobacco which gave another boost to the area. It must, however, be emphasised that Sandakan, like many of the other major port towns of today such as Lahad Datu, Semporna and Tawau are largely the creations of the Company and not indigenous villages taken over by them.

In the west, it was thought that the building of a railway would help open the country and railway construction was therefore launched in 1896. It was to prove a costly failure at the beginning, bringing the Company to the verge of bankruptcy, although it did bring in Chinese labour which formed the nucleus of the population of railway towns later on. The line from Beaufort to Weston, both settlements created by the railway, was completed in 1900. The port of Weston was found to be inadequate and it was proposed that the line should extend to Papar Grantisan and then to Gaya Bay and finally to Jesselton, also the creation of the railway. But the railway did not produce dramatic results since there was not a staple, like tin in Malaya, to haul. Not until the coming of rubber was there an influx of people and capital into the west coast, for by chance the railway was to traverse lands suitable for padi and rubber, a feature which was to save the country and to shift the focus to the west. This culminated in the transference of the capital to Jesselton after the War.

## GENERAL ECONOMIC POSITION

Within British Borneo some forms of economic integration hold the three political units together. Basically alike in their dependence on primary production and brought together in a larger currency union, the territories also share elements of their transport and labour economies, and engage in much inter-territorial trade. Although it does not produce a significant share in Southeast Asia's output of any commodity, except pepper and oil, British Borneo occupies a place in the larger economy of the region in that it produces the same primary commodities for world markets. It appears that with the exception of oil refining, the British Bornean economy will for some time continue to rely on the production of raw materials.

Nevertheless, economic factors have been of prime importance in their effect on the settlement landscape of the country. In the first place, the distribution and density of population over the country is affected by the pattern of economic activities. Thus the Kuching area, the Sibu area, the Miri-Seria area, the west coast plains of North Borneo and the Sandakan area support a denser population than do the interior and eastern parts of the country which have not been

fully penetrated and opened up for development. Within these densely populated areas, padi areas have higher densities than the rubber estate areas, and Chinese smallholding areas have higher densities than areas of shifting cultivation. Secondly, the ethnic groups show, in their distribution, some instances of correspondence with areas of specialised economic activities. Sago areas are worked by Melanaus; padi areas are peopled mainly by indigenes; gold-mining and rubber small-holding areas by Chinese; coconut areas by Chinese and Bajaus; fishing areas by Malays and Bajaus. Thirdly, the concentration of different economic activities in different areas has given rise to different settlement types in each of these areas: thus there are rubber estate settlements and the ports of North Borneo, the padi settlements on the northwest coastal plains, the Melanau sago settlements along the Third Division coastal areas, the gold-mining towns of Bau in the upper Sarawak river area, and the recent oil towns of Miri, Lutong, Kuala Belait and Seria.

For most parts of the country, rubber has introduced a three-fold pattern of land use: (1) imported commercial plantations; (2) imported Chinese rubber smallholdings; and (3) indigenous subsistence padi farms. This three-fold pattern has not altered much since rubber was first introduced except in places where Chinese have started growing other crops instead of rubber. Elsewhere, these three major elements exist side by side, often integrated into a blend of all three systems.

The simplicity and multiplicity of the pattern of land use is, however, dependent on the extent to which the area has been penetrated by commercial crops and by Chinese, by roads, railways and other capital enterprises. The above more densely settled areas, situated in the plains between the coastal swamps and the interior hills, are places with better transport lines and with more Chinese and agricultural development. In each of these areas, the land use shows a blend of all systems, whereas the interior and other less accessible regions show a simpler type of land use.

In areas with new land use patterns, new settlement patterns have also appeared at the same time. Although plantation and commercial enterprises have introduced new settlement forms, the largest contribution by a single people to settlement change has come from the Chinese. Wherever they have gone, their settlements and smallholdings and towns have appeared on the scene. Often they form the vanguard of pioneering forces within the country, and many Chinese homesteads are adjacent to settlements of shifting cultivators. But the greatest change to the landscape made by the Chinese is still in the coastal plain area between the swamps and the interior hills.

The large-scale immigration of Chinese did not begin until the development of commercial crops and the discovery of minerals. Large numbers of Chinese moved across the border from Dutch

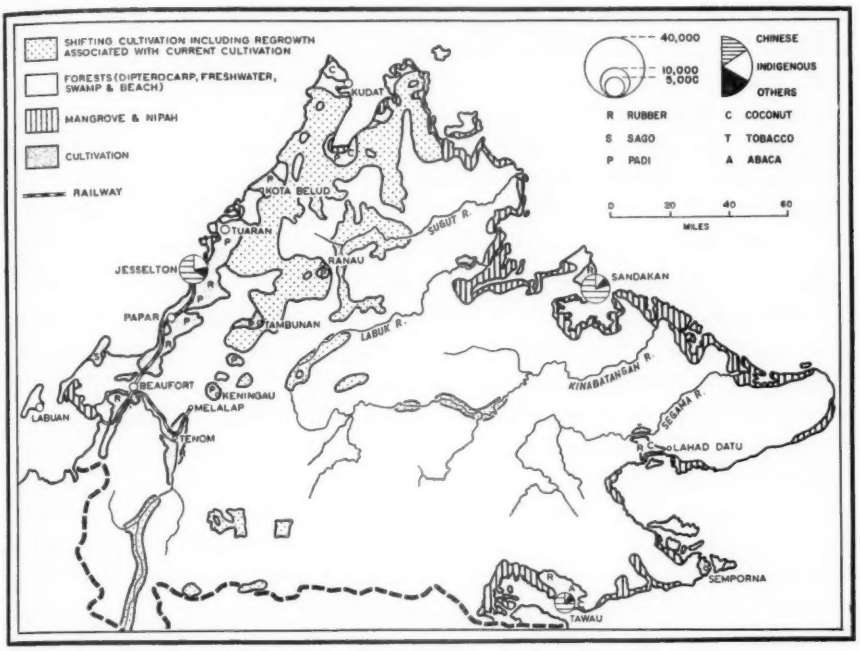


Fig. 2. Land Use and Settlement in North Borneo.

Borneo into the Bau area to mine gold during the early days of Brooke rule; many of the miners turned agriculturists later. Large numbers were also pouring in by sea into Kuching and others moved into Sibu later to plant padi, pepper and, later, rubber. In North Borneo, there was a movement of Chinese into Kudat and Sandakan and also along the railway line into the interior. Today most of these areas form the nuclei of large Chinese settlements.

The coming of oil, although relatively recent, has had a great impact on the economy and the landscape. The tangible evidence of this impact is seen largely in the coastal strip of oilfields where towns like Miri, Lutong, Kuala Belait and Seria have appeared. Oil, like gold in Bau, has also drawn in immigrant labour from overseas, and the normal patterns of the population in these areas have been upset. It has also drawn out to the coastal oilfields Malay peasants from Brunei kampongs and Dayaks from their interior long-houses. Most important of all is the fact that the revenue from oil makes it possible for Brunei to finance its development plan. New roads, new settlement schemes, new ports, new airfields, new padi fields are appearing on the Brunei scene and form part of the fast changing landscape. It is envisaged that with all this money available for social and economic development, Brunei will fast outstrip Sarawak and North Borneo in achieving better standards of living and will also have, within a shorter time, more radical changes in her primitive landscape.

Thus the introduction of commercial crops, the discovery of oil and the immigration of Chinese into Borneo has introduced many changes and it is also true that economic and agricultural development during the last fifty to seventy years has been the single most important factor affecting the growth, distribution and composition of the population. Many characteristics of the British Bornean settlement today may be traced back to the development of rubber, the railway or oilfields; they are thus very recent, appearing only after the establishment of peace and order in the area by the Brookes and the Chartered Company.

The economic history of the country can therefore be divided into periods during which certain products were profitable; during each of these one economic activity was emphasised in one area of the country, which therefore saw an expansion of settlement in that area to the exclusion of the rest. In British Borneo, there was the early mining period centred at the upper Sarawak river area, the rubber period, the oil period, and each of these cycles has had a geography as well as a history. As seen in the different landscapes in various parts of the country today, it is evident that each crop or commodity has left its imprint, however faint, on a specific region.

## POLITICAL GEOGRAPHY

Although British Borneo has been in the backwater of international politics the above survey does bring out the fact that it has had its vicissitudes in political development and these have changed its political complexion and pattern completely from what it was in the sixteenth century. Looking back over its recent political geography, it should be noticed that only the Portuguese and Dutch navigators were the first people to look upon Borneo as a unit. It was the Portuguese who extended the name Borneo (Brunei) to the whole island. To them it was a landmass to be circumnavigated, a coastline to be charted. It was only at this period and in this sense that Borneo was a single country.

Although Borneo is at present divided into four political territories, the coasts of Borneo, before the advent of the Europeans, had for long belonged to other island kingdoms of Southeast Asia. This was because within this island world of Malaysia the seas have united rather than divided and the real frontiers have always been the mountainous centres of the islands, not their coasts. Banjermassin in the south of Borneo, for example, is racially a part of Java; the east coast, Samarinda, Balikpapan and even as far north as Tawau, is a Bugis country racially and economically part of Celebes. In Lahad Datu Sandakan and Kudat one hears the speech of Filipino Moros and the native chiefs still hold their titles from the Sultan of Sulu. In the west — Brunei, Kuching, Sambas and Pontianak — is the Malay culture of Johore and Sumatra which has felt the impact of European

and Chinese colonising elements most. In the far interior is what the Dutch administrators finely called Great Dayak, an impenetrable centre which was ignored until the twentieth century. Even in North Borneo, the union of the east coast and west coast into one political territory is a marriage of two different worlds. Nevertheless, there are political pressures today that belittle such past political fragmentation and associations and foreshadow a future unity for the whole of Borneo.

In the recent past, there have been three pressures on Borneo. These have been, first, the Indian population; secondly, the Chinese population; and, thirdly, as a result of these pressures and the impact of the west, the slowly crystallising units of Southeast Asia. In the future, it appears that there will be two main pressures on Borneo: the same age-old movement of people from the Asian mainland; and — a recent phenomenon arising from Indonesian independence — Pan-Indonesianism, which in the last resort will, no doubt, be backed politically and militarily by Australia. These two pressures will, of course, be influenced by two main elements in the Bornean landscape today: the island's oil, as at Seria, Miri, Balikpapan and Taranakan, and its sparse population (12 per square miles as against 850 per square mile in Java and 250 in China). It has already been suggested that "oil and empty spaces, and the pressure of Chinese and Javanese millions are the factors which mainly determine the future. The first will attract the eyes of ambitious industrial powers, particularly those of Asia, who have no oil of their own. The second will provide the plausible excuse that excessive populations must expand into undeveloped areas. Under these influences it may well be that the Chinese and the Javanese will make of Borneo a political issue. [51]

Politically fragmented in the past into the different coastal sultanates and their spheres of influence, today the island is still fragmented into four political units of Sarawak (British Colony), Brunei (British Protected Sultanate), North Borneo (British Colony) and Kalimantan (Indonesian Borneo). Set within an area of emergent nationalism and newly independent states, Borneo (particularly British Borneo) is a political anachronism now as it was also before the War when part of the country was ruled by a White Rajah and a part by a Chartered Company.

It has already been pointed out that Borneo is in the centre of the area in the spatial sense but paradoxically it is not the core area in the human sense, and has had a lesser share of the civilizing contacts and other influences that have come into the region. Just as its geographical position has explained the diversity and backwardness of its tribes so has it partly explained the backwardness of its political evolution.

[51] *The British Survey* (1951): 3.

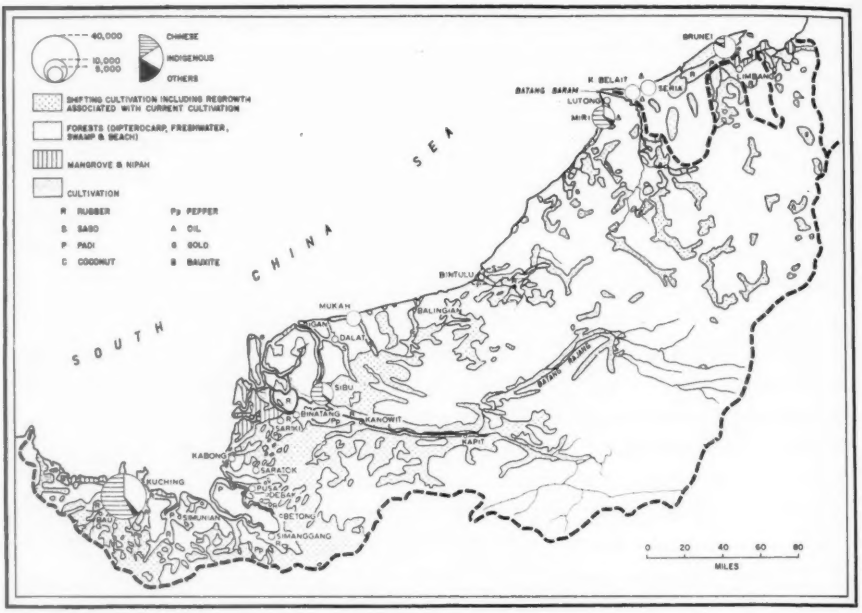


Fig. 3. Land Use and Settlement in Sarawak.

It is still a land without a nation. And there is no such person as a Bornean.

Even plans for a loose federation of the three British territories have made no headway and are virtually dead for some years to come. Although a federation of British Borneo would allow for greater national diversity than would a unitary state, the Brunei Malays who jealously guard their oil wealth and fear Chinese influence in the other two territories, do not want it; and the indigenous people of the other two territories, nervous also least changes give more power to the Chinese, have also given it no active support. But commercially, apart from Brunei's wealth through oil, North Borneo and Sarawak have a promising future. Borneo is being steadily developed on the east coast, close to that great silent part of Borneo Island which is Indonesian. British Government funds and Chinese private enterprise and capital are important factors in this development. The dilemma is that if there is to be commercial development, then in Sarawak and North Borneo at least, Chinese help cannot be refused. It emphasises the fact that alien minorities form not only racial but also economic obstacles to political integration. On the Indonesian side internal problems have kept the Indonesians busy, but the time will soon come when they will begin pressing for a merger of all territories into a Greater Kalimantan just as vigorously as they are doing now over West Irian.

It is clear that British Borneo is fast coming into the international limelight not only because of oil and settlement potentialities, but also because of the changing political status of the countries around her. The recent independence of Malaya and the advent of Singapore as a self-governing state have had repercussions in British Borneo, changing political patterns and also influencing British strategic interests in the area. Such influences are reflected in the fact that North Borneo is now openly to be used as a military touch-down point between Singapore and Hong Kong; that military manoeuvres will take place there in place of Malaya; and that Labuan has been declared a free port and is being developed as an international airport. Just as the early nineteenth century activities of the British in this area epitomised the strategic and trading interests of her China Sea trade, the transfer to Borneo today epitomises changing political patterns and strategic interests as well as a withdrawal of British influence into one of the last bastions of her Asian colonial empire.

It is possible to distinguish four phases in the history of settlement in British Borneo up to the Second World War. Beginning from the Balambangan debacle to the coming of Brooke in 1839 and the occupation of Labuan, the first phase epitomises the early trading and strategic interests of Britain in her South China Sea trade.

The second phase saw intensive efforts by Brooke with aid from the British Navy to wipe out piracy and headhunting. These efforts to suppress piracy led to the territorial expansion of Sarawak, so that by 1868 on the death of James Brooke, Sarawak had extended as far north as Kidurong Point. This was not a period of drastic settlement changes as the Government was mainly pre-occupied with establishing peace and order. Only in the Upper Sarawak River were there changes on the forested landscape, [52] changes which were made by the large influx of Chinese from Dutch Borneo.

With the succession of Charles Brooke, Sarawak entered upon a new period of progressive development and expansion. Piracy was eradicated and although there was some development and immigration, the important feature was the annexation of the rest of the present Sarawak territory from Brunei. In North Borneo, on the other hand, the Chartered Company on the granting of the Charter, began with the gradual annexation of land from the many independent rulers on the west coast, followed by a period of railway building and the creation of towns. This phase also saw the focus on the northeast coast at Sandakan, becoming more so with the rush to plant tobacco in the last two decades of the nineteenth century. This was also not an active settlement phase in North Borneo, the Company being concerned more

[52] St. John (1863): 345-46; 369; Baring-Gould and Bamfylde (1909): 185-86.

with the establishment of ordered government, railway building, trade and importation of a transient labour force both for the tobacco estates and the railway.

It was only the last phase, beginning at the turn of the century, with rubber, and later oil, as an incentive that saw a flood of immigrant labour and settlers coming into the country. Thus this phase saw the intensification and extension of settlement in British Borneo, an extension which involved a movement not so much of indigenous agricultural people, but of both immigrant labourers and peasants mainly from China. Most of them moved into the Kuching, Sibu, Miri, Seria, the west coast of North Borneo, Kudat, Sandakan and other pockets on the east coast, to open up land not only for rubber but also for other crops. The Chinese and native groups in British Borneo show often similar patterns of distribution and economic function; this is very different to Malaya where the native Malays and the various immigrant communities contrast sharply in their distribution and in the role they play in the country's economy. Major changes in the peopling and settlement pattern of British Borneo occurred only in this last phase. These developments were interrupted by the Second World War, but during the last years they have resulted in major modifications of the traditional coastal Malay and interior long-house settlement patterns. During earlier periods,the changes which affected the rest of the South east Asian world touched Borneo only marginally; in the words of Harrisson the area "has received the last gasp of the ideologies of the West, the final faint ripples. Hindu influences just reached as far as the Philippines, visibly petering out even in North Borneo, Arab influences and Mohammedanism again just about reached their limit there, and failed to influence a large majority of the population directly. European influences followed much the same pattern." [53]

In fact, British Borneo is one of the last places in the world to be brought under "control" and it is only since the Second World War that modern methods of "colonial" government have been applied to the country — the last accretion to the British Empire.

[53] Harrisson (1949): 103.

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# The Originality of Japanese "Capitalistic" Society

## *Notes on the proportions of Proprietors, Employees and Family Workers*

KOJI IIZUKA

VERY small-scale agriculture (farm units average 1.7 acres per household) is not the only occupation carried on with the support of unpaid family labour. Table 1 indicates that Japanese industry also has an extraordinarily high proportion of very small units. The facts that in Japan's case medium- and small-scale enterprise in manufacturing industry is forced to adopt the form of subcontracting, and that the differential in wage levels between large and small enterprises is remarkably wide, have become recognised over the last few years and hardly need detailed exposition here.

TABLE 1

**Distribution of Factories, Occupied Population and Output by Scale of Industry (1956)**

| Factory Size (No. of persons engaged) | Plants | | Persons Engaged | | Value of Output | |
|---|---|---|---|---|---|---|
| | Number | % | Number (thousand) | % | Value (hundred billion) | % |
| — 3 | 237,807 | 54.9 | 541 | 8.9 | 2,180 | 2.5 |
| 4 — 9 | 84,624 | 19.5 | 548 | 9.1 | 3,635 | 4.2 |
| 10 — 19 | 59,495 | 13.7 | 801 | 13.2 | 6,736 | 7.7 |
| 20 — 29 | 20,579 | 4.7 | 489 | 8.1 | 4,860 | 5.6 |
| 30 — 49 | 14,810 | 3.4 | 558 | 9.2 | 6,241 | 7.2 |
| 50 — 99 | 9,152 | 2.1 | 620 | 10.3 | 8,179 | 9.4 |
| 100 — 199 | 3,739 | 0.9 | 515 | 8.5 | 8,323 | 9.6 |
| 200 — 299 | 1,237 | 0.3 | 300 | 5.0 | 6,165 | 7.1 |
| 300 — 499 | 901 | 0.2 | 342 | 5.6 | 7,980 | 9.2 |
| 500 — 999 | 590 | 0.1 | 409 | 6.8 | 9,696 | 11.1 |
| 1000 | 439 | 0.1 | 925 | 15.3 | 22,924 | 26.4 |
| Total | 433,373 | 100.0 | 6,048 | 100.0 | 86,919 | 100.0 |

*Source*: Ministry of Commerce and Industry, *Industrial Statistics.*

The American periodical *United States News and World Report* for 20th April 1959 carried an article under the impressive title of "The Miracle of Japan—From Ashes to Riches in 14 Years".

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The recovery of Germany from a defeated nation to a world power is the sensation of Europe, but look at what happened in Japan! That old enemy too has staged a sensational comeback. Industry has far outstripped the prewar level of production and still continues to rise.[1]

This was demonstrated by an easily understood chart of comparative indices of major items before the war, at the end of the war and for the latest year.

Within Japan itself it seems to be generally publicised that we now suffer under the General Council of Trade Unions, as though the trade unions were the big trouble since the war. It was therefore a revelation to discover that this American financial journal sees the situation in a completely opposite light. According to its account, the Japanese do not demand excessive wage rises but work hard for long hours. It states that they are endowed with perseverance and industry and are quick to assimilate the latest complicated techniques. Compared either with other industrial countries or with undeveloped countries it sees them as the kind of workers you dream about. The article concluded on the note that, because of this, Japan was the best country in the world from the point of view of capital. However, it did not fail to mention at the same time the widening gap between big and small business; the vast difference in wage levels between the two; the gloomy outlook for the population who cannot find employment even at the lower level and the increasing contradictions beneath the "miracle's" brilliant exterior.

Some years ago, shortly before Pearl Harbour, I was told by a student of a certain university that his teacher of economics had taught him that if he wanted to understand the nature of Japanese capitalist economy all he need do was to read *Das Kapital* and someone or other's *Historical Materialism*. Seeing that the student seemed to be impressed that that was all there was to scholarship, I was for a while at a loss for what to say. This was no doubt because at the time I myself was taking a long look at the way modern Japan had, since the Meiji Restoration, been outstretching herself in "making the country prosperous and strengthening the Armed Forces" and "increasing production and encouraging industry" with the aim of joining the ranks of the Great Powers at the earliest possible moment, and was then facing the life-and-death test of modern total war, with politics, economy, ideology and everything else coloured by militarism. On reflection, it seemed to me that neither classical economics nor leftist formulism could explain the peculiar structure of Japanese capitalism.

[1] From this report I discovered that we are paying 40 million dollars a year for the importation of foreign technique and for patent fees, 80 per cent of it to America, and that on the other hand we are earning $500,000 from exports of technical assistance.

## THE INDIVIDUALITY OF JAPANESE CAPITALISM

Capitalist countries, as far as they are capitalist, have certain general and common features; but they also show certain peculiar features in their social structure. It is certainly a common feature that the capitalist class, the owners of means of production, the entrepreneur class, do not like socialism or communism. It is also certain that, compared to pre-war days, there has been a great step forward in that, scared by bitter experience of the great depression of 1929-30, they have become very sensitive to business fluctuations and take precautions against them seriously. Both "capitalism" or "socialism" are, however, no more than generic terms, like "horses" or "cows". What exist in practice in this world are not just "horses" in general but racing thoroughbreds, powerful draft Percherons, surefooted mountain ponies or Shetland ponies for children to play with. Not only do their abilities and uses differ, but they also require different care and training. In the same way, what we call "capitalist society" includes the cases of England, America, Japan or Australia, which differ, naturally enough, in their conditions of economic development.

TABLE 2

**International Comparisons of Wage Differentials by Scale in Manufacturing Industry**

| Factory Size (No. of persons engaged) | Japan (1952) Annual Wages of all Workers Y 1000 | Differentials | United Kingdom (1949) Annual Wages of all Workers £ | Differentials | U.S.A. (1947) Annual Wages of all Workers $ | Differentials |
|---|---|---|---|---|---|---|
| 1 — 4 | — | — | — | — | 2,018 | 65.2 |
| 5 — 9 | 74 | 39.2 | — | — | 2,049 | 72.8 |
| 10 — 19 | 86 | 45.5 | — | — | 2,340 | 78.7 |
| 10 — 24 | — | — | 303 | 83.9 | — | — |
| 20 — 49 | 99 | 52.5 | — | — | 2,607 | 84.4 |
| 25 — 49 | — | — | 301 | 83.4 | — | — |
| 50 — 99 | 114 | 60.4 | 302 | 83.7 | 2,643 | 85.6 |
| 100 — 199 | 131 | 69.3 | 306 | 84.8 | — | — |
| 100 — 249 | — | — | — | — | 2,663 | 86.2 |
| 200 — 499 | 158 | 83.3 | 310 | 85.9 | — | — |
| 250 — 499 | — | — | — | — | 2,717 | 88.2 |
| 500 — 999 | 182 | 96.4 | 324 | 89.3 | 2,792 | 90.3 |
| 1000 — | 189 | 100.0 | 361 | 100.0 | 3,088 | 100.0 |
| Average | 126 | | 324 | | 2,777 | |

*Sources*: Japanese Government, *Economic White Paper for 1954*, Tokyo, p. 191. For Japan, Ministry of Commerce and Industry, *Industrial Statistics for 1952*, For U.K. and U.S.A., the relevant industrial Census.

Tables 2 and 3 set out some of the basic data for Japan and other capitalist countries, and illustrate clearly the ways in which Japan differs from other leading capitalist countries. Table 2 shows what nonsense it is, particularly in the case of Japan, to make international comparisons of wages simply in terms of averages.

As a result of the high rate of modernisation and investment over the past few years, the record of the rise in Japan's labour productivity has been outstanding. Despite a considerable rise in wages (in average value) the labour cost required to produce one unit of product has, in contrast to the more advanced countries, actually fallen.[2] Figure

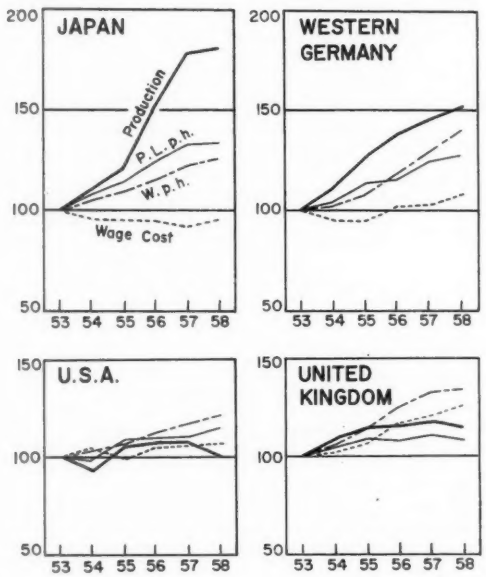


Fig. 1. Contrasts in Production, Productivity of Labour per hour, Wages per hour and Wage Costs in Japan and Selected Western Countries.

1 shows just how great this contrast is. In both England and the United States the curve of wage per hour shows a steeper rise than the curve for index of production or labour productivity per hour, and even in Western Germany the share of wages in production cost has tended to rise since 1956. Japan is the only country which has actually been able to reduce wage costs. Thus, setting Japanese wage levels in their international context, we can agree objectively with the special correspondent of the *United States News and World Report* when he says that Japanese workers do not demand "excessive" wage rises and praises the quality of the labour force. During this period, however, the wage differential between big and small business, far from decreasing, has actually shown a continuing tendency to widen, and temporary and

[2] Japanese Government: *Economic White Paper for 1959*, Tokyo, p. 36.

outside workers in big business have been left out of the wage increases received by regular workers. Furthermore, the widespread use of temporary and outside workers would seem to be particularly and charcteristically Japanese.

Table 3 is, I think, the international comparison which shows most strikingly the peculiarity of Japan as a capitalist society. In my experience so far as a teacher and writer, I have found the peculiarity of Japanese society represented by those figures to be the most difficult to get across to people.

TABLE 3

**Employment Status of Economically Active Population**
**An International Comparison**

| Percentage Classified as | Japan 1954 | France 1946 | W. Germany 1950 | Switzerland 1941 | Sweden 1950 | Australia 1947 | U.S.A. 1950 | U.K. 1951 |
|---|---|---|---|---|---|---|---|---|
| Proprietors | 25.9 | 34.7 | 14.8 | 21.4 | 19.4 | 19.5 | 16.1 | 7.2 |
| Employees | 37.2 | 65.3 | 70.8 | 70.9 | 76.7 | 79.6 | 81.8 | 92.6 |
| Family Workers | 36.9 | — | 14.4 | 7.7 | 3.9 | 0.9 | 2.1 | 0.2 |

*Notes*: For details see Prime Minister's Department, Statistical Bureau, *Digest of International Statistics* (in Japanese). Family workers correspond to "Unpaid Family Workers" in the I.L.O. Yearbook. In the case of France, wives of proprietors assisting their husbands in their work are included as "proprietors" and other family workers are included as "employees".

When all the Japanese who are economically active are classified by their employment status it is seen that the proportions of proprietors, employees and unpaid family workers are respectively 25.9 per cent, 37.2 per cent and 36.9 per cent. The total of the proprietor class and the family labour associated with it accounts for over 60 per cent of the working population. The corresponding figure for England is no more than 7.4 per cent. In Australia the figure is 20.4 per cent or, in other words, wage labour and salaried employees make up 79.6 per cent—a sharp contrast with Japan's 37.2 per cent.

The above figures are the proportions of the total working population in agriculture, forestry, fisheries, mining, construction, commerce, transport, communications and other public enterprises, service industries and Government service. Turning to the population engaged in manufacturing industry only, in England (1951), of a total 8,445,000, 191,000 were of proprietor status, 8,121,000 were employees and some 2,000 odd were family workers.[3] On this basis, those of proprietor status

[3] Japanese Government: *Digest of International Statistics,* Tokyo. As they stand the three figures add to 130,000 less than the total and the percentages are therefore a little odd; the percentages are worked out on the figures as they stand.

are just over 2 per cent, employees just over 96 per cent and family labour is practically negligible. In contrast, in Japan (1953) of the total of 6,740,000 engaged in manufacturing industry, proprietors were 960,000 (just under 15 per cent), employees 4,870,000 (just over 72 per cent) and family workers 910,000 (just under 14 per cent). Japan is a highly developed capitalist country and is often envied for her industrial development; she nevertheless diverges sharply from the classical pattern of Western capitalist society as represented by England.

## SOME POLITICAL IMPLICATIONS

Even supposing the workers in all industrial sectors, including agriculture and commerce, could be unionised, they would only amount to 37 per cent of the economically active population in Japan's case. Proprietors and their family workers, who in Japan make up almost two-thirds of the economically active population, exist as a hotbed of *petit bourgeois* and small proprietor mentality. Small though they are, they are lords of their own establishments, and they with their families cannot feel sympathy with the belief that the strike is a weapon for the preservation of workers' livelihood. Besides, when they feel desperate, as for example in a depression, their despair no doubt takes a form befitting *petit bourgeois,* small proprietors.[4]

What, we may ask, is the significance, in elections for example, of the large numbers of proprietors, big or small, in the Japanese type of capitalist society?[5] I would like the above tables to be considered carefully with this in mind.

Dismissal of employees and the impoverishment and collapse of small proprietors are typical examples of the way in which the effects of recession are thrust on to the weakest groups. In a recession, even though it may not amount to a depression, poverty attacks through the dog-eat-dog set-up of the capitalist economy. Unlike the employee or working class, however, the members of the small proprietor—small producer class are each individually, albeit in a small way, masters in their own right and as such are in the position of mutual competitors in the open market. When business is bad those in the same trade compete even more keenly, paring their margins to the bone in the struggle for existence. For that reason there is no class whose energy is more difficult to organise for their own defence, and as they lack power to

[4] In our own time we have seen how in Germany, hit by the pre-war depression, Fascism arose. In the process leading up to Hitler's seizure of power, the frustrations of the *petite bourgeoisie* were calculatedly and fully made use of by the Nazi demagogues.

[5] The problem is analysed more fully in my article which appeared in *Chuo Koron* (Tokyo) for March 1957 under the paradoxical title of "Capitalists Who Failed to Make the Grade as Wage Earners" (subtitle, "The wretched position of proprietors of small and minute business").

bring pressure to bear on the Government, they tend to look for a remedy for their despair in the emergence of some hero.

I do not want to give too pessimistic an impression about my own country. Here I would like to leave aside for the moment the formal argument which says that the position of very small proprietors or producers, including farmers, *vis-à-vis* monopoly capital is essentially no different from that of the working class. I would like to chew over the self-evident principle that small proprietors, however small, are after all proprietors and not members of the proletariat. The above is but a summary of what is a large and complex topic; nevertheless, it does, I think, offer a point of view which is of some value in explaining the idiosyncrasies of Japanese politics.

## POSTCRIPT

This article is a somewhat rephrased translation of Part 4, Chapter 8, of my *Japan in Asia* (Asia no naka no Nippon), published in June 1960, by Chuo-Koron-sha, Tokyo. During the course of the year 1960, the wage differential between large and small business in Japan has shown, thanks to the economic growth of very recent years and for the first time since the war, a slight amelioration; that is to say, it has stopped increasing and instead has more or less decreased. Examination of Fig. 1 shows that even in Japan the share of wages in production costs has tended to increase since 1957.

# Research Notes and Comment

The Editorial Board hopes to develop a section devoted to Research Notes and Comment. Contributors are invited to outline briefly the research work they have in hand, relating it either to a more general research topic or to a wider field of geographical and social studies, and perhaps indicating the initial results of their research. Too frequently we feel geographical research is kept unpublished until it is considered to be worthy of a major paper. However commendable this may be it reduces discussion among geographers to a minimum and hinders the fruitful exchange of ideas. Even more conspicuous is the absence of comment amongst geographers upon published papers. We hope therefore to receive brief comments upon the concepts, theses or viewpoints presented by our contributors.

## CHANGE IN THE NEW ZEALAND VILLAGE: THE VILLAGES OF SOUTHERN NORTHLAND 1950–60

These villages were first studied by the author a decade ago, and were described in an unpublished Master of Arts thesis,[1] so that this report is something of a postscript to the earlier study. Twenty-eight villages were selected for the original study, extending from the tiny railway settlement of Taipuha in the extreme north of Otamatea County to Swanson in the south, a village at that time steadily being engulfed in the spread of Auckland Metropolitan area.

While there are some exceptions, the villages of southern Northland are typically coastal or riverine, and the visitor in 1950 could usually find a wharf or jetty nearby, a forlorn and decaying reminder of the long dependence upon coastal shipping and river transport. In form and pattern they are almost without exception linear, even the larger centres being without the rudimentary grid pattern more typical in the Wellington area. Furthermore, there is often extreme fragmentation of settlement with farm and village settlement intermingled. Their form and layout serve as crude symbols of their haphazard and spasmodic growth. There remains abundant evidence from the past of the competing functional attraction of river landing and dairy factory, main road and railway, occurring in an economic and institutional milieu which provided neither guidance nor control. In most cases the efficiency of the settlement as a servicing centre has suffered: in Maungaturoto, for example, the visit of a local farmer to the centre might involve him, in the course of normal business, in a journey from the dairy factory with its offices and large general store, to the railway and saleyards some three miles away. On his way there he would possibly call at the bank or post office, garage or stock and station agent, in the main business centre, which itself extends for almost a mile along the main highway. Yet Maungaturoto in 1950 had only 132 non-farm-houses and a population of about 400 people.

In function the villages are similar to those in other areas of New Zealand, for they provide for the more immediate social and material needs of the farming community and of the village itself. In one important respect, however, the

[1] Anderson, A. Grant, *The Rural Villages of Waitemata, Rodney and Otamatea Counties: A Study in the Geography of Rural Settlement.* Unpublished M.A. Thesis, University of New Zealand, Auckland, 1952.

settlement net of this area differs from that in most farming areas of New Zealand. Apart from Warkworth and Helensville, whose range of services is only slightly greater than that of the larger villages, there are no larger incorporated settlements south of Dargaville and Whangarei, so that the hierarchical grading of marketing centres that one finds in more closely-settled areas is missing, and the village in this area is undoubtedly more vital in the whole fabric of marketing and social relationships than is the village in most rural areas of New Zealand.

The main forces which have shaped the village historically, and especially the impact of changes in the period 1920 to 1950 which were so profound that they affected the whole original analysis, deserve brief mention. Consolidation of farming had continued during this period, particularly on to drained swampland in the vicinity of Ruawai, and, in the late thirties and early forties, on to areas of gumland about Wellsford and Kaiwaka. At the same time the growth of road transport, the consequent decline and extinction of regular coastal shipping, and the increasingly restricted role of the railway which had been built through the area early this century brought about a drastic modification in the relationships that had evolved. Some villages like Mangawhai, whose river landings were no longer used, bypassed by the main road settled quietly into untidy obscurity; others such as Wellsford or Maungaturoto, lying astride road junctions and stimulated by business people with drive and confidence, began in the late thirties to expand in response to new demands and forged ahead of the others. Meanwhile in all villages one could discern the effect of social, economic and technological changes which were apparent in rural life; in the disappearance of the village tradesman, in the establishment of motor garages and motor transport depots, and in a general narrowing of the range of social functions. No longer was the local community able to provide sufficient support for the Agricultural and Pastoral show, the New Year sports or the axemen's carnival and these gradually died out except in the larger centres.

In view of the continuation of these trends, and in view of the general stability in numbers of farming population in the area, the writer felt justified in predicting, pessimistically, in 1950 a rather circumscribed future for the villages. Apart from the three larger centres, Wellsford, Maungaturoto and Ruawai, where continued growth could be anticipated, it seemed likely that the rest would make little progress and would continue to provide no more than the basic needs of the community.

While the immediate and superficial impression gained in revisiting the villages was that the prediction had proved accurate, nevertheless a closer analysis reveals that at least some of the pessimism was unfounded and that some of the centres have displayed a vigour which seemed impossible ten years ago. The most impressive change has taken place in the three largest villages. Their continued growth in an atmosphere of increasing business confidence is steadily transforming them from their "village" status. The most striking index of this growth is in the addition of new housing, for there has been an overall increase in the three centres of 64 per cent since 1950, whilst Wellsford has increased 92 per cent. This growth of population has been matched by an increase in the number and range of services. Retail services have shown increasing specialisation and the new enterprises include six clothing, three footwear shops, and four dealing in a range of household hardware, electrical appliances and other bric-à-brac which is a conventional symbol of prosperity. There are new establishments supplying foodstuffs, and new tea and refreshment rooms, but most interesting has been the establishment of fruit and vegetable shops in each of the centres. Continued specialisation in farming is apparently rendering the farming community less and less self-sufficient so that our concept of "basic" services must change accordingly. The increasing mechanisation of farming at the same time has stimulated a

marked expansion of general and motor engineering and 11 new establishments have been added in these three centres.

Whilst the expansion of retail services has led in Ruawai and Maungaturoto to some consolidation of the business centre, there is no similar trend in the growth of housing which continues to follow earlier patterns of uncontrolled ribbon development along main highway and side road alike. There has apparently been no attempt to encourage the formation of subsidiary roading which would make the settlement more compact, and without exception new housing has sprung up in pocketed fashion along existing frontages. The short-term economies of this may benefit the individual, but the community as a whole will inherit the long-term problems of providing in the future normal urban amenities of water supply, sewerage, footpaths and paved roads, and of rationalising land use and traffic circulation within the centre.

In contrast to the vigour found in these centres, the small villages such as Pakiri, Punoi, and others with a very minimum of functions, appear unchanged by the ten years, and those which have made any progress are exceptional. Leigh, in Rodney County, has made the greatest progress, and besides additional housing, the erection of a new hotel and new hall to replace buildings destroyed by fire reflects confidence in the future of the centre. Two factors contribute to this: the continued development of beach settlement in the vicinity, and the establishment of a small fishing enterprise supported by local fishermen, producing smoked and deep-frozen fish at a small plant in the village and retailing throughout the district. In Te Hana, north of Wellsford, there have been 12 new houses and a motor garage added. This centre is a more specialised dairy factory settlement, and the new housing is being provided for the growing labour force.

The broader and more diverse group classed as medium or secondary villages in 1950 have experienced a greater variety of trends. A number which are not sited on main roads, Matakana and Kaukapakapa being examples, reveal almost no change in form except for the addition of one or more new homes. On the other hand there are a few which have displayed surprising vitality. Until 1920 Paparoa was the unquestioned centre of the county, with County Offices, the Magistrate's Court, the bank, and the Cottage Hospital as well as a range of other services. During the period from 1920 to 1950 it had been effectively supplanted by Maungaturoto, which had the dairy factory and the railway, and it seemed doubtful whether it would recover any of its former status. Yet its housing has grown from 27 to 41 non-farm-houses while a public hotel, a drapery shop, chemist, and stock and station agency have been established, and a new hall and school built. Kaiwaka, on the main road south of Maungaturoto, was being affected by land development in its vicinity, and its continued expansion could be anticipated in 1950.

Four villages in Waitemata County, Riverhead, Kumeu-Huapai, Albany and Silverdale, whilst still serving a rural community, are being affected increasingly by the nearby dormitory and beach settlement, so that their additional services, the appearance of multi-unit blocks of shops, and the increasing specialisation of the services, are not solely the result of increasing demand from the rural community. In Riverhead and Kumeu-Huapai there has been considerable expansion of housing, some of it dormitory settlement, as well as intensification of farming. In the case of Albany and Silverdale there has been little change in housing within the village and little sign of intensified land use, but nearby ribbon development and expanding beach settlement are affecting these two centres.

It is apparent that although the majority of villages have displayed little growth, there have been changes of an economic and social nature which could not be anticipated in 1950, and these developments underlie the renewed vigour found in some centres. Ten years ago there had been little opportunity for these centres

to recover from the impact of depression and war, building restrictions and land sales control, while the tide of centralisation had lowered business confidence in the smaller centres. Franklin[2] has suggested that the more rapid growth of some villages has been strongly influenced by the character of the business community, and the pattern of change in the last ten years supports this, for it largely explains the appearance of multi-unit blocks of shops in the centre of a number of villages, and the changed atmosphere of Paparoa.

Since 1950 there has been an increase of 52 per cent in village housing, and although a proportion of this is dormitory settlement taking place near Auckland, nevertheless it is safe to assume that non-farm population is growing more rapidly than farm population. Undoubtedly this is a part of the general expansion of tertiary activities in our national life, and reflects more specifically the growing specialisation of farming, its increasing mechanisation and the continued prosperity of the rural community. Almost all the activities which have been added to the village economy, for instance, have been of the servicing type, the only new processing or manufacturing industries being a small engineering firm in Wellsford and the fishery in Leigh. Joinery shops have been set up in four centres, reflecting the expansion of building activity, while 20 new motor garages have been established. At the same time three small industries have been closed: a small knitwear factory at Riverhead, and a saddlery and limeworks at Wellsford. The growth of retail services has been accompanied by increasing specialisation: of 71 new enterprises, 16 are drapery shops and 15 are hardware firms, whilst in the villages on the main highway there have been nine new refreshment and tea rooms.

There was little opportunity for more than a superficial enquiry about changes in the social functions but there seems little doubt that the transformation of rural life brought about by a variety of forces is continuing, and the demands made upon the village are changing accordingly. That they are still regarded as vital centres for social intercourse is indicated by the fact that ten new community halls have been built, all but two of them being in large centres. Without exception these are War Memorial halls built with Government subsidy, or are Returned Servicemen's halls. In the centres which have one, the licensed hotel remains a powerful magnet, while in the five villages that also have a Totalisator Agency Board one can expect a Saturday stir which would be a mystery to an overseas observer. However there is a range of other "social" functions centred on the village, less spectacular yet perhaps more enduring, which continues to weld a district and locality into a self conscious community.

A. GRANT ANDERSON

[2] Franklin, S. H., "The Village and the Bush", *Pacific Viewpoint*, I, 2, Sept. 1960.

# The Asian and Pacific Scene

## NEW GUINEA: A POSTSCRIPT

It was stressed in *Pacific Viewpoint* (Volume I, Number 2, 1960, pp. 242-44) that economic development in Dutch New Guinea was a necessary adjunct to political development. Since that date such wide-sweeping political reforms have occurred that economic development becomes even more urgent.

The Dutch have established the independence of the Papuans as their principal task in New Guinea. In order to prevent chaos when they retire the Dutch have started training a national political cadre capable of legislating for an independent Western New Guinea. They have formed a Council of 16 elected members and 12 appointed members which "will have full co-legislative powers from its very beginning". Furthermore, "within one year of its institution the Dutch Government intends to ask the Council for advice regarding the way in which the right of self-determination for the Papuans can be best obtained". (Covering note of the Government to the First Chamber of the Netherlands Parliament on the final reading of the New Guinea Council Bill, announced in the Bulletin sent to the Royal Netherlands Legation in New Zealand, 3 November, 1960.)

The Australians also acknowledge that "the end of political advancement is self-government" (*Australian Policy in Papua and New Guinea,* published statement made to the House of Representatives, Canberra, Tuesday, 23 August 1960, by the Hon. Paul Hasluck, M.P., Minister for Territories, p. 13). But the Australians "are not going out of the Territory in a hurry" (p. 15, "Territory" refers to both the United Nations Trust Territory of New Guinea and Papua). Thus political advancement is based primarily on a policy of "uniform development", and "when in The Hague, Mr. Hasluck specifically dissociated himself from the Dutch view of rapid development through the forcing of elites" ("Prospects for New Guinea", *Current Affairs Bulletin,* Vol. 26, No. 9, 5 September 1960, pp. 131-32). Taking local government councils as a basis the aim is to build slowly towards national government. For the present, Papuan representation on the Legislative Council is to be limited. The Legislative Council which opened on 10 April 1961 included 37 members: six elected and six appointed native members, six elected and four appointed non-native members, and 14 official members with the Administrator acting as President (p. 29, *Progress of a People,* prepared under the authority of the Minister for Territories on the occasion of the opening of the Legislative Council for Papua and New Guinea on 10 April 1961).

Many aspects of this policy have been criticised by a number of well qualified writers (e.g., "New Guinea", *Outlook,* 5 October 1960, pp. 7-14; and articles by Murray Groves, *Observer,* Sydney, 26 November and 24 December 1960). Major criticisms are the time required for the operation of such a policy, particularly in the face of probable demands for independence; the possibility that disunity rather than unity may be the outcome of basing political development on local than regional government; the lack of training or opportunity at present for Papuans at the national level of government and administration, thereby frustrating the urbanised elites; and the fact that already development is far from uniform.

Mr Menzies has stated, when referring to the granting of independence: If in doubt you should go sooner, not later" (Press Interview, 20 June 1960, quoted in *Papua and New Guinea: Some Recent Statements of Policy on Political Ad-*

*vancement,* issued under the authority of the Minister of Territories, p. 13). Thus Mr Hasluck has the support of his Prime Minister. Moreover the more qualified critics of his policy comment on the methods and timing of political advancement, not on the aims. However, opposition to the granting of independence has come from white settlers in New Guinea. In order to answer this vociferous group Mr Hasluck has constantly referred to "partnership" and has stressed that minority interests will be guarded.

Australia has an unenviable task and it is to the credit of Mr Hasluck and his colleagues that they are prepared to face this problem. But in the light of the methods by which the Dutch are facing a similar task one must question the validity of the methods to be employed by Australia in overcoming such huge obstacles. The pressure of white settlers, the refusal to admit that recent events in Africa and Asia have any similarity to the situation in Papua and New Guinea (*Australian Policy in Papua and New Guinea,* p. 9), and the attempts to mask the influence of Dutch reforms on Australian policy (*Papua and New Guinea,* p. 6), are further complications in an already complex and potentially explosive situation.

IAN POOL

## SOLOMON ISLANDS: LAND TENURE AND ECONOMIC DEVELOPMENT

The popular view of the Solomon Islands is of an underpopulated group infrequently visited by overseas cargo vessels and economically held to ransom by a monoculture based upon the coconut palm. Whilst this view is unfortunately correct, it fails to recognise the development that has taken place throughout the Protectorate during the past ten years. To a large extent this progress is the outcome of information obtained from surveys undertaken either by individuals at the request of the High Commissioner or by administrative officers withdrawn from normal duties. Beginning with Walker's investigation of forest resources in 1948, there have been surveys of mineral deposits, fisheries resources, and prospects of growing cacao (F. S. Walker, *Report of the Forests of the British Solomon Islands Protectorate,* London, 1948; J. C. Grover *et al, The Solomon Islands—Geological Exploration and Research, 1953-56,* Geological Survey Memoir No. 2, London, 1958; H. van Pel, *A Survey of Fisheries Resources in the British Solomon Islands Protectorate,* South Pacific Commission, Noumea, 1956; D. H. Urqhart, *The Prospects of Growing Cacao in the British Solomon Islands,* Bournville, 1951). This growing awareness of the group's importance to both Melanesia and the Southwest Pacific as a whole, was given official expression in 1952 when the High Commissionership for the Western Pacific was granted independent status and made separate from the Governorship of Fiji.

The most recent report published—an investigation of customary land tenure —is also the most comprehensive work available to date on the Solomon Islands (C. H. Allan, *Customary Land Tenure in the British Solomon Islands Protectorate,* Report of the Special Lands Commission, Honiara, 1957). Throughout the Protectorate, land falls into one of three categories—native, private and public. Native land is that owned by Solomon Islanders or held by them under customary tenure; private land is held by non-natives in freehold, and was purchased before the Land Regulation of 1914 prohibited further alienation; and public land is any which does not come within the first two categories. Since the acquisition of freehold land is now restricted to the Crown only a fraction (6.1 per cent in December 1958) is not held under customary tenure by Solomon Islanders.

Even though land is the Solomons' most important resource nine-tenths of the total area lies above 2,000 feet and is clad in dense rain forest. In these areas the land is the undisputed possession of the Solomon Islanders and their plots are to be found clustered on the less steep hillsides, in the narrow valley floors, and on the few small plateaus. In contrast, about one-fifth of the narrow and more fertile coastal strip was alienated before 1914, and almost all of this could be classified as "first class coastal land" (p.60). Some of the smaller islands, such as Russell which is given over almost entirely to European-owned plantations, are also those in which the soils are sufficiently fertile to withstand the heavy and continued demands of the coconut.

A considerable number of islanders live in the villages and grow coconuts for copra, part of the receipts from which are used to pay for communal duties not fulfilled as a result of their participation in a cash economy. Because the sub-clan is the effective land-holding group, such people have no title to the land on which the coconut groves are situated. Conversely, the European plantation owner is provided with some security of tenure by legislation, even though this does not extend to the recognition of a guaranteed title. Thus has customary land tenure, which "appears to have been fluid when Europeans arrived, adapted itself haphazardly to new social, political and economic needs". In the face of these gradually accelerating changes the recurrent theme throughout Allan's report is that the traditional system of tenure "should not be allowed to evolve without direction or purpose, that problems relating to it cannot be left to Local Government, that tendencies towards individual tenure should be encouraged, and that where conditions are ripe, adjudication and registration should proceed on the basis of the issue of individual titles. While natural resources should be preserved, they must also be developed to economic advantage" (p. 303).

Land is so plentiful throughout the Protectorate that it is under- rather than over-used. It will be many years before population pressure has reached the stage where, as on the outlying Reef Islands and Tikopia, man-land ratios are more than 200 persons per square mile. Yet even though the Solomons is underpopulated coastward migration and "urban drift" is as much a problem here as in the more densely settled parts of the Southwest Pacific. Since 1945, what might be termed the "urban' population has trebled. This has led to apprehension about the lack of land set aside for native housing, particularly in the main centre Honiara, which has grown from a collection of temporary huts to a town of 3,500 in the 15 years since it was established. Allan estimates that approximately 1,000 Solomon Islanders are living in the capital (p. 125), but in the three years since his report was written, this number has been increased by the in-migration of a further 1,830 (*Pacific Islands Monthly*, Vol. XXX, No. 7, Sydney, February 1960, p. 140).

If the problem simply consisted of the Islanders' need to lease a portion of public land for residential purposes, its solution would be comparatively straightforward. It is complicated, however, by the attitude of the European population, the bulk of whom are engaged in administrative duties and who rarely remain in the territory for more than four years. To them town life is seen to be the prerogative of the European, and only because of "unfortunate necessity" do they suffer the presence of Melanesians and Polynesians in Honiara at all.

Those employed by the Government and various public corporations live in housing estates specifically provided for them, but other workers are less fortunately placed. For these latter, "housing is consistently short, overcrowding is widespread, services are limited, (and) furnishing is negligible" (Allan, p. 125). Shanties have sprung up in the short space of 15 years, for the number legitimately employed is swelled by those who come in search of work, superior

education, or expert medical treatment, or who are lured by the glamour of "urban" life. Even though a smaller number is involved, the position in Honiara is depressingly similar to that at Port Moresby, where 15,000 Papuans live mainly in improvised shanties of old timber and rusty corrugated iron (M. C. Groves, "How We Exploit the Papuans", *Observer*, Vol. 3, No. 26, Sydney, 24 December 1960, p. 9).

Frequently, as a result, the Solomon Islander is placed in an invidious position. Though often desirous of acquiring a lease and becoming a permanent resident he is discouraged by restrictive building regulations and the lack of public amenities. He may have doubts at being labelled a temporary resident when he outstays most of the "permanent" European population, but he is certain to be highly critical of a Central Government which does not abide by the housing regulations it enforces. Dwellings for married Fijians have been constructed by the administration from non-permanent materials which the Solomon Islander is forbidden to use.

Allan quite rightly is sympathetic towards the Islander who migrates to Honiara, Gizo or Auki, the most important of the four district centres. He argues strongly against the view that non-Europeans constitute a transient group who, sooner or later, will return to the village, and recommends that in Honiara long-term leases be granted to encourage and facilitate their permanent settlement. With this achieved, Allan looks forward to the day when the Solomon Islander will assist in the administration of town affairs.

Whilst these recommendations reflect bold thinking it is not certain that any of Allan's suggestions on this question have been taken up, despite a recent report which stated that "the necessary legislation arising from it [i.e. *Report on Customary Land Tenure . . .* ] has been drafted and enacted" ("Social Science Research in the Pacific Islands", *South Pacific Commission Technical Paper*, No. 127, Noumea, September 1959, p.1). It is to the administration's credit that a further committee was appointed in April 1958 to consider "the housing of Solomon Islanders in Honiara" (*British Solomon Islands: Report for the Years 1957 and 1958*, London, 1960, p. 40). Whatever the outcome of this second investigation, the attitude of the European minority will have far-reaching consequences, for the "ill effects of the cinema, drinking, prostitution, bad health and vagrancy" (Allan, p. 127) which today constitute a problem in Honiara may be equally evident tomorrow in the secondary centres of Gizo and Auki.

Coastward migration and "urban" drift, however, are not the only forms of population movement that urgently demand the clarification of tenurial concepts. Planned, extra-territorial migrations to the Solomons began in 1955 when an advance party of about 30 Gilbertese was transferred from Sydney Island, in the Phoenix group, to Titiana, on Gizo Island. By September 1958 two further groups were settled, and today the community approaches 430. Village allotments averaging half an acre now occupy the foreshore at Titiana, houses have been built, and small plots of sweet potato, paw paw, cassava, banana and sugar cane have been planted. Nearby, the coconut plantation of Nusabaruku has been subdivided on the basis of ten palms per family, whilst to the rear of the village an area of generally hilly land has been made available for larger gardens. Forced by circumstances to be intensely land conscious, the Gilbertese have obtained spectacular yields from food crops by following methods of intensive cultivation that are foreign to most Solomon Islanders.

Nor is this the first re-settlement scheme in which these unfortunate people have participated. In 1937, 700 Gilbertese were moved from overcrowded areas in the Southern Gilberts to the atolls of Hull, Sydney and Gardner. Less than 20 years later on Sydney Island (the least successful of the planned settlements) land suitable for taro pits and coconut palms was so scarce that yet another shift

was necessary, this time to Gizo Island (B. Hilder, "More Gilbertese Move Out—To Become New Solomon Islanders", *Pacific Islands Monthly*, Vol. XXIX, No. 4, Sydney, November 1958, pp. 57-61).

Although the Solomon's population pressure is at present confined to a handful of outlying parts, population growth and present agricultural techniques are such that within the next two generations land hunger could develop on Santa Ana, Sikaiana, Wolande and Fanilei ,and in parts of Malaita—at Nonosila and Kwi, around the Lau lagoon, and on the islands of the Langa Langa lagoon. In the very near future, crowding on Tikopia and the Reef Islands is likely to become so acute that controlled emigration will be desirable. When this should take place, how many of the local people should be involved, and to what extent it should fit into an overall programme for the Solomons as a whole can hardly be answered when there are no accurate forecasts of "population trends related to land and food resources in terms of land tenure and agriculture techniques" (p. 242).

While such local needs must be met within the framework of an overall scheme for economic development, the major challenge before the Protectorate arises not out of population pressure but out of the need for a more efficient use of the area already under cultivation—a course previously hampered by the Land Regulation of 1914 which gave no individual security of tenure. Since the draft Land and Titles Regulation meets this requirement, it is not too much to hope for an increased volume and greater variety of agricultural produce to bolster the inadequate revenue at present derived from the sale of copra, trochus shell, and kauri logs. Partly as a consequence of this situation, the British Exchequer each year makes a grant-in-aid to the Solomons, and the contribution for 1961 will amount to £570,000, or half the Protectorate's budget (*Pacific Islands Monthly*, Vol. XXXI, No. 7, Sydney, February, 1961, p. 21). Too little of this sum is channelled into capital developments, for almost all of it represents a subsidy on existing services. The amended land legislation is, in fact, a challenge to the Solomon Islands, since, as Allan correctly observes, it emphasises that "land consciousness, at present misdirected and wasteful of resources, can be put to productive economic use within the framework of present and future social and political development" (p. 304).

MURRAY CHAPMAN

## THE CHALLENGE OF THE MAORI POPULATION

As Borrie has already demonstrated, the Maori population represents a microcosm of some of the population trends to be found in many areas of the world (W. D. Borrie, "The Maori Population", *Anthropology in the South Seas*, J. D. Freeman and W. R. Geddes (eds.), New Plymouth, 1959). The so-called "population explosion" is not a phenomenon which one usually associates with New Zealand, yet the Maori exhibits the characteristics which are regarded as being typical of an emergent population. In the majority of New Zealand statistics the implications of the Maori population dynamics are not apparent because the Maori constitutes a minority group within a considerably larger, more highly developed and demographically more stable society. It is doubtful if New Zealand administrators fully appreciate the probable influence of present Maori population trends on the future development of the country as a whole, although there is evidence of increasing concern for the welfare of the Maori people themselves.

The 1956 *Population Census* ("Maori Population and Dwellings", *Population Census 1956*, Vol. VIII, Government Printer, Wellington, 1960) provides the most recent description of the Maori population. In 1956 there were 137,151 persons in New Zealand with half or more Maori "blood" and, therefore, con-

sidered to be Maori for census purposes. In addition there were 25,307 persons with less than half Maori "blood" who were classified as non-Maori although such a classification may not be an accurate description of their cultural identification. In the intercensal period, 1951 to 1956, the Maori population increased by 18.6 per cent, or an average annual increase of 3.5 per cent. As the Maori gains arise exclusively from natural increase the annual figure is best compared with the non-Maori natural increase for the same period of 1.6 per cent. A major contributing cause to the comparatively high rate of Maori increase is the decrease in Maori infant mortality. Although there have been some major fluctuations the rate has fallen from 153.26 per 1,000 live births in 1938 to 68.16 in 1951 and 54.36 in 1956. The non-Maori rates, 19.39 in 1956, suggest that there is still considerable room for improvement. A Health Department survey indicates that with improved Maori housing and an intensified ante-natal and post-natal care programme the rate should continue to fall ("Survey of Maori Households in Relation to Infant Mortality", *Medical Statistics of New Zealand for the year 1956*, Government Printer, Wellington, 1959).

As a result of improved Maori infant mortality rates and mortality rates in general, which fell from 16 per 1,000 in 1946 to 9.37 in 1956, the age structure of the Maori population differs markedly from that of the non-Maori. Compared with the non-Maori the Maori population is very youthful: the median age of Maori males is 16.32 and females 16.28 compared with the non-Maori medians of 29.08 and 30.36; 19.15 per cent of the Maori population is under the age of five and 47.01 per cent under 15, while for the non-Maori the comparative figures are 11.31 per cent and 30.41 per cent. Only 3.63 per cent of the Maori are over 60, but 13.25 per cent of the non-Maori. It is impossible to obtain national figures for completed family size but the above statistics suggest that the Maori family must be considerably larger than the non-Maori. In the "Survey of Maori Households . . ." already quoted, the eight Maori mothers over 40 years of age in a randomly selected sample had produced an average of 12.25 children of whom 2.12 had died and the comparative figures for the eight non-Maori mothers from a similar sample in the same age group were 4.62 and .13.

The general implications of such an age structure are reasonably clear. At present Maori parents have the problem of feeding, clothing and housing families which are disproportionately large in comparison with the European families. The New Zealand educational system must make provision for Maori pupils whose numbers are increasing at an unprecedented rate. In the near future New Zealand's economy will be expected to absorb a larger number of Maori employees than ever before and the social services will also be expected to meet the needs of an increasing number of Maori clients. A rapid increase in population obviously presents some problems in the functioning of any society, but a closer examination of some of the information available concerning the Maori suggests that the difficulties in New Zealand are not merely a matter of numbers.

The Maori is still predominantly a rural dweller, 76.23 per cent of the Maori population live in counties and in the intercensal period the proportion in cities and boroughs has increased by only 4.93 per cent. Nor are the Maori evenly distributed throughout New Zealand, the North Island contains 96.17 per cent of the Maori population (Auckland Province 72.45 per cent) while in six counties the Maori outnumber the non-Maori. The relationship between employment opportunities and the distribution of the Maori population is clearly demonstrated by the Department of Labour in two maps comparing these factors and the evidence amply justifies the conclusion that "the largest aggregations of Maori population are in areas far removed from centres of economic activity" ("The Maori Population and Employment", *Labour and Employment Gazette*, X, 4, Department of Labour, Wellington, 1960). Unless considerable develop-

ment occurs in the rural areas, it seems reasonable to predict a marked increase in Maori population movement in the next decade. Indeed the article suggests that "the flow of Maori migrants will have to be in the vicinity of 4,000 a year" into the cities and boroughs. The comparison of this estimated number with the intercensal migration rate of approximately 1 per cent, or 1,370 per year would lend support to the view that there are resistances among the Maori themselves to urbanisation. This view is further strengthened by the statement that "in country areas there is already some underemployment among adult Maoris".

That the Maori has less variety of skills for sale on the labour market is demonstrated in census returns which show that in 1956 the Maori were poorly represented in the professions and skilled occupations and that 21.2 per cent of the Maori male labour force were classified simply as "Labourers" compared with 7.9 per cent of the non-Maori. Absence of employment in skilled trades is reflected in differences in income between the Maori and the non-Maori. The 1956 census volume states that "the returns show 59 per cent of the Maori and 83 per cent of the non-Maori male population receives £500 a year or over. The groups earning more than £700 cover more than half, 56 per cent, of the non-Maori labour force compared with less than a quarter, 24 per cent, of the Maori labour force". Although 30.67 per cent of Maori males are engaged in agriculture, forestry and related work (compared with 19.14 per cent non-Maori) and agriculture is noted in New Zealand for the relatively high income it provides, the following statement from the census volume indicates the uneconomic nature of many Maori farms: "The proportion of Maoris earning £500 a year or over in the division covering agriculture is the second lowest of all the industry divisions, even though this group contains the highest proportion of employers and workers on their own account". Unless educational resources are sufficient to increase the number of Maoris trained for the professional and skilled occupations there is a strong possibility in the future of the Maori becoming identified solely with the low paid and unskilled urban labouring class, with the consequent fusion of class and race prejudices.

Taking into account family size and income it is not surprising that some Maori parents in rural areas state that they find it economically difficult to ensure that all their children will obtain adequate higher education. The problem of Maori education cannot be stated simply in terms of limitation of finance and resources in serving a rapidly increasing school population. Press reports of submissions made to the Commission on Education in New Zealand, which is now in its second year of hearing evidence, would seem to suggest that teachers of experience in Maori schools are not satisfied that the present curriculum, designed predominantly for non-Maoris, is altogether appropriate to meet the needs of Maori children. A survey of research over the last five years (John E. Watson, "Studies in Maori Schooling", *Education*, 9, 4, Department of Education, Wellington, 1960) would seem to indicate that Maori children experience difficulty in subjects which test their English vocabulary or which require an adequate understanding of written English for success. Watson points out that in several of the studies "speculations on the effects of bilingualism are offered freely" while in others personality factors arising from cultural differences between Maori and non-Maori are stressed.

It is obvious that the educational services for Maori children are being challenged and will be further challenged by the rapidly increasing youthful population, but what is not so evident is the demand which will be made on other social services as the present generation of dependent children move into the adult age groups. The position with regard to the health services, for instance, has only recently been made clear. R. J. Rose states, "There has been a misconception common among physicians and health workers that the Maori is comparatively free from these (degenerative) types of disease", and goes on to

point out that the misconception arose because workers in the health field had ignored the different age structure of the Maori and non-Maori populations (R. J. Rose, *Maori-European Standards of Health*, Special Report Series 1, Medical Statistics Branch, Department of Health, Wellington, 1960). By the use of age specific rates to adjust crude death rates Rose presents a very different picture of Maori health from that which had previously been current. The effect of this adjustment is best illustrated by reference to the death rate for 1958, which was 8.9 for the non-Maori and 8.7 for the Maori. The Maori adjusted rate is 17. The application of this technique to each of the major causes of death and, with some technical limitations, to figures for hospitalisation leads Rose to conclude that, "In addition to the group of epidemic and infectious diseases as well as all the acute types of respiratory and gastro-intestinal diseases, the Maori is much more susceptible than the European to death from one of the so-called degenerative conditions such as cancer, diabetes, cerebral vascular lesions, heart disease and chronic forms of nephritis. . . Accidental deaths and homicidal deaths are much more frequent among Maoris of both sexes". Taking into account his findings with regard to specific cause of death and the additional fact that "there appears to be a disproportionate number of Maori admissions to public hospital for treatment" his final conclusion is that if the Maori standards of health continue to be substantially lower than the non-Maori, "hospital and medical services would need to be expanded at an increasing rate to meet the increase in numbers seeking medical treatment".

Although cross-cultural comparisons are particularly unreliable in the field of mental health because of differing cultural toleration of the mentally ill, the application of age specific rates to first admissions to mental hospital demonstrates the Maori rates are lower than the non-Maori with the exception of the 10 to 29 age group (*Mental Health Statistics of New Zealand for the Year 1959*, Medical Statistics Branch Health Department, Wellington, 1960). The disproportionate number in this age group is accounted for by a higher incidence of schizophrenia and mental deficiency. The complete absence of Maori first admissions for non-psychotic alcoholism and the small number of psychoneurotic cases may also indicate a different pattern of mental disorders in the Maori when compared with the non-Maori.

The rapid increase of the Maori and the consequent age structure of the population has given rise to problems, such as Maori housing, which have been evident for some time; other problems, for instance the true incidence of disease in the Maori, have only recently been identified, but the full social implications of the growing proportions of Maori to non-Maori has not yet been made apparent. In 1956 there were 14.9 non-Maori to each Maori, the lowest the ratio has been since 1891; by 1972 the figure may have fallen to 11.6 non-Maoris to each Maori; by 2,000 it may be nearer 6. If the nature of race relations in a country is in some way a reflection of the population proportions of the ethnic groups involved, one may wonder if inter-group tensions in New Zealand will mount as the proportion of Maori to non-Maori increases.

J. R. McCREARY

# Geographical Reviews

## LEAP FORWARD FROM THE LEFT BANK

J. Guillermaz, *La Chine Populaire,* Presses Universitaires de France, Paris, 1959.
P. Huard et M. Wong, *Chine d'Hier et d'Aujourd'hui,* Horizons de France, Paris, 1960.
*Cahiers Franco-Chinois,* Quarterly, Paris.
A. de Riencourt, *L'Âme de la Chine,* Arthème Fayard, Paris, 1960.
E. Calic, *La Chine, grande puissance,* André Bonne, Paris, 1960.
J. Jacquet Francillon, *Chine à huis-clos,* Presses de la Cité, Paris, 1960.
R. Dumas, *J'ai vu vivre la Chine,* Arthéme Fayard, Paris, 1960.
E. Servan-Schreiber, *Chine Rouge, vint-cinq ans après,* Plon, Paris, 1960.
Tibor Mende, *La Chine et son ombre,* Editions du Seuil, Paris, 1960.

What are we to think of present-day China? An unknown land, a world isolated by the "Bamboo Curtain", a gigantic concentration camp or an earthly Paradise? French travellers, more numerous every year, make their way across China: novelists, journalists, economists or simply tourists, alone or in delegations invited by the Government of China. Almost all feel the need to narrate their experiences, to describe their impressions, whether favourable or unfavourable, so that today anyone, even without having been to China, can form an opinion about it.

Some works are simply enquiries. Such is *La Chine Populaire* by J. Guillermaz which traces the country's historical evolution and paints a picture of its institutions, society, and economic life, and of the role which the "Overseas Chinese" play both in supplying the country with currency and in spreading the influence of People's China in the countries of Southeast Asia and the Pacific. It is a handy book in which information and figures abound and which, in spite of a few lapses, shows a laudable care for impartiality; it will soon need to be brought up to date for events move fast. . . .

Another work of enquiry is the fine book by P. Huard and Ming Wong: *Chine d'Hier et d'Adjourd'hui.* "China", the authors say, "is famous rather than well known", so they undertake a thorough study in all the scientific and technical fields: language and literature, ideas, science and technology, fine arts, finally the characteristics of its civilisation. The China of today is lightly sketched, but the authors' aim is above all to show what are the deep roots of present-day China, and the innumerable diagrams and maps, the engravings and etchings, the scenes from town and country, give a very vivid picture of life in China and make this magnificent work a mine of precious documents.

The *Cahiers Franco-Chinois* have on several occasions collected together the testimony of travellers. The October 1959 number, published on the occasion of the tenth anniversary of the People's Republic of China, extracts from the reports, previously published in various French newspapers, of a delegation of economists, MM. Bettelheim, Bartoli, Denis, Dumontier, Pressat; in these they tackle problems of birth and death rates, increase of population, contraceptive propaganda, methods of economic planning, questions of irrigation, of the agricultural "Leap Forward" and of small rural industries. These reports, written by specialists, are of the greatest interest but, since they are two years old, they are today outdated. The June 1960 number contains a collection of important extracts from articles published by three journalists in their respective newspapers (M. Fatras, of *Havre Libre,* M. Rivière of *Progress du Lyon* and M. Carasso of *Marseillaise*). They tackle a certain number of problems which seem "burning" to Europeans, such as "Buddhism and Christianity" or the future of small craftsmen, or again the "yellow peril", but they also furnish precise and detailed information, particularly on the annual per capita income of one "commune", an income which has doubled in ten years.

Another journalist, Emile Servan-Schreiber, gives more recent evidence. He returned to China 25 years after a first journey there, whence his title *Chine Rouge, Vingt-cinq ans après.* He tries to judge objectively the results of a revolution "which the increase and impoverishment of the population made inevitable . . . and which counts as one of the most important historical events of all time." Certainly he is not a complacent admirer. He notes in passing the errors committed, sometimes corrected. He scoffs gently at the new "austerity", the little room left for originality. But he draws a vigorous distinction between the seriousness, the integrity, the joy in their work and the well-being of the Chinese and the misery and squalor which exist in Hong Kong and which contrast vividly with the luxury and pleasures of a few. The progress achieved in two years, thanks to the "Great Leap Forward", is undeniable and, he says, necessitates a long period of peace in China; this being so, the non-recognition of China by the Western powers seems to him an absurdity. The comparison he makes between the Chinese revolution and the Soviet revolution, at least in its beginnings, is entirely to the honour of the former. "China . . . owing to a certain moderation, a less brutal break with the past . . . retains a certain structure and quality, an appearance which is its own".

M. Amaury de Riencourt in *L'Âme de la Chine,* tries to make this past understood. In order to prove that history is only a perpetual "beginning again", he strives to show how Chinese civilisation underwent cyclical crises. After the "slump" caused by "contact" with the West, China, under the impetus of Marxism, returns to its first vocation: "It is a more modern, more effective, more pitiless version of what was for thousands of years the 'Celestial Empire' . . . " He quotes the example of Emperor Wu-Fi (B.C. 140) who adopted measures to control prices, created State monopolies and undertook gigantic operations, to conclude: "This attempt at planned economy turned into tragedy!"

M. Edouard Calic's conclusions in *La Chine, grande puissance,* are more optimistic. His book is a report, very complete and full of precise information on the development of agriculture and industry, on the way in which this people, for centuries struggling with famine, drought and flood, has conquered these scourges. The figures surpass imagination and he recites from one of his conversations the question "Can you compare our task with that of the Pharaohs? Beside us they were only petty artisans. . . . The effort of 650 million Chinese is man's revenge on the gods!"

The works of J. Jacquet Francillon and R. Dumas are also reports. Both are essentially "travel notes". If the first is openly hostile, one can however find in it indications that would leave those who knew the China of 30 years ago dreaming: "The children are bursting with health . . . the crowd is always properly dressed . . . China, that overpopulated nation, needs more manpower. . . ." The second, also anecdotal, is more sympathetic to New China. The author goes from surprise to surprise: the constant refusal of any tip amazes him particularly, but he sees in this not so much a care for dignity as the application of a directive. If the "commune" seems to him the end of any private life, he nonetheless states its results honestly: "China, which has known so many miseries and famines . . . has found in the co-operative the solution of its agricultural misfortunes. . . . The Chinese people are gay and happy".

Revolution or evolution? Return to the past under a new form? It seems that many authors have asked themselves that question. M. Tibor Mende, the author of the most important of the works we have discussed, *La Chine et son ombre,*[1] turns resolutely towards the future and tries to understand in this perspective the

[1] Tibor Mende, "China and Her Shadow", Thames and Hudson, London 1961, pp. 360. Index, map.

"unique" undertaking which is the Chinese revolution. Knowing many other underdeveloped countries, in particular India, he is in a position to make interesting comparisons. But he is not content with superficial impressions: travelling more than 25,000 kilometres (15,600 miles) he visited like everyone else, but better than everyone else, towns, factories, co-operatives, even prisons. He tries, beyond the economic factors, to discover the motivating element and finds it in what he describes as an "idealism", a "Messianic impulse" which has for its first objective the transformation of man himself. Certainly, this does not take place without "a real suffering", accepted most of the time, but it is thanks to this transforming of man (not to his enslaving) that progress in agriculture, industrialisation, the rise of culture have been able to be accomplished. Tibor Mende traces the stages of the evolution of China from 1949 onwards, "the Hundred Flowers", "the Leap Forward", relations with the U.S.S.R. In the recent past, as in the future, he sees "bursts of enthusiasm and tears of suffering". But, he says, "it would be fair (to the Chinese) that their discipline, their know-how, their devotion, their heroism should be recognised, their sacrifices admired and their progress recorded. . . . One day the true China will surely have to appear. Neither terrifying nor angelic—simply human."

J. DRESCH

## TAKE OFF AT KAI TAK

Eduard Szczepanik, *The Economic Growth of Hong Kong*, Oxford University Press for the Royal Institute of International Affairs, London, 1958, pp. xiv, 186, Index and map, 25s. Foreword by F. Benham.

Post-war Hong Kong has experienced an industrial revolution so rapid that its economy, once based upon the entrepôt trade with China, has been transformed. The Colony lacks many of the advantages usually considered necessary for industrial development—she has few raw materials, no power resources; there is a serious lack of land and of water; there is no protective tariff barrier; and the Colony has had to bear the strain of great population pressures. A study of the mechanism of the economic growth has therefore an added dynamism. And yet Mr Szczepanik's interpretation lacks substance.

The framework of the book is an unhappy one, and although its purpose is "to describe and analyse the economic growth of Hong Kong during the decade which followed the Second World War" (p. 133), the argument is only placed in its historical context in the very last chapter. Again, the structure of Part II is unfortunate, and the separate chapters are not sufficiently integrated with the title chosen for the section "The Entrepôt Economy". It is a pity that the author is so guarded in his forecasts concerning the future of this "traditional source of income", but by assessing the changing patterns and methods of international trade he infers that the future of Hong Kong must rest mainly in the field of industrial development.

In fact it is a characteristic of this book that although many stimulating problems are raised the author makes little attempt to resolve them. For instance, in the first chapter too fleeting a comparison is made between Hong Kong's economic development and that of Singapore, Macao and Taiwan. A second example may be taken from the opening chapter: "Other elements of institutional character, such as the Chinese social structure, which presents a close network of families, clans, secret societies, religious sects, professional, cultural or charitable organisations, as well as various deep-rooted traits of ancient Chinese philosophy . . . all would have to be included in a complete analysis of Hong Kong's recent economic growth. These factors, however, belong to a realm beyond the reach of the crude tools which an economist has been trained to handle". In discussing

"The Nature and Mechanism of the Industrial Revolution" (Chapter 6), another most profitable field of research is suggested when Mr Szczepanik compares the lot of the industrial worker in Hong Kong with his mainland counterpart: "This comparison shows that the standard of living of industrial workers in Hong Kong, low as it is, is much higher than in China. This explains why the Colony has been constantly receiving, apart from political refugees, an inflow of economic immigrants from the mainland". One wonders if the chain of cause and effect is not here presented in too facile a manner?

It should be pointed out that there is a striking similarity between the content, and even the actual text of Mr Szczepanik's book, and that of the *Hong Kong Annual Reports.*

A particularly disappointing omission is the lack of a fuller analysis of the sources of overseas investment, for Mr Szczepanik tells us that the average annual inflow of capital from abroad has been the equivalent of £65 million per annum between 1947 and 1955, or, on average, 40 per cent of the national income. A far more detailed analysis of the source and conditions of this investment is surely essential before predictions can be made as to the future growth of Hong Kong's economy.

MICHAEL FREEBERNE

## THE MANNERS AND CUSTOMS OF THAILAND

Thomas M. Fraser, Jr., *Rusembilan: A Malay Fishing Village in Southern Thailand,* Cornell University Press, New York, 1960, pp. xviii, 281, $5.75. Foreword by Lauriston Sharp.

Howard Keva Kaufman, *Bangkhuad: A Community Study in Thailand,* Monographs of the Association for Asian Studies, J. J. Augustin, New York, 1960, pp. ix, 235, $5.50.

Though prepared by trained observers, these two monographs are not unlike the reports of manners and customs brought back from exotic lands by nineteenth century travellers: the data presented are heterogeneous and often superficial, the concepts in terms of which the authors attempt to manipulate their data are entirely conventional and often imprecise and both monographs lack sharp theoretical focus.

Fraser worked at Rusembilan in southern Thailand for eight months, watching and discussing daily village routines, attending village functions, and conversing informally in the coffee shops, presumably in the Malay language. He wished to discover "how Rusembilan and other Malay communities were integrated into the natural [*sic*] structure of Thailand and how the social structure and cultural pattern reacted to points of stress in the process of integration". He wished also "to investigate the process of change occurring in the community and to determine what differential factors were operative in the process". Despite these professed aims, all but two chapters are purely descriptive.

Accounts of fishing and agricultural techniques at Rusembilan (Chapters IV and V) may interest geographers. The chapter headings refer to the "economy" of fishing and agriculture; but there are few specifically economic data apart from the local prices of equipment purchased and produce sold, and there is no specifically economic analysis of any kind apart from some superficial descriptions of productive organisation and marketing procedures. The material is mainly technological.

Chapters VII and VIII are devoted to social and political organisation. The former contains an account of relations between villagers and government officials. The latter sets out some perfunctory observations on kinship terminology, "respect

and authority", social groups, and feasting. The sociological materials lack the rich texture that only prolonged and intensive field work can supply: there are no case studies; no texts; no account of the ambitions, interests and motives of sample villagers; no distinctions between ideological precepts and actual practice; no analysis of power or the pursuit of power; no genealogies; and few detailed statistics. The author's field enquiries have been neither sufficiently intimate nor sufficiently systematic. Most social anthropologists could write a book like this after eight months' field work, but nowadays few care to do so.

In the two final chapters Fraser offers some theoretical discussion of his field data. "The orientations of the culture . . . are conceived to be the largest consistent units that can be derived from the culture. Each is made up of several series of smaller units, the smallest of which is the individual 'culture trait'. . . . Individualistic and communal orientations are considered, and then the polarity between them and how it operates in the culture" (p. 219). What it all amounts to is that in economic affairs the people of Rusembilan tend to consult their individual interests while in the affairs of the Church they seek to promote the interests of the whole community. At Rusembilan "there exists a basic polarity between the orientations of the individualistic type and those of the communal type" (p. 225). Where does there not?

Kaufman's study of Bangkhuad, a Thai Buddhist community, has no theoretical pretensions. After spending "200 days and 7 nights" in the village, where he worked with an interpreter, though he himself spoke Thai, he has gathered together data on all aspects of village life, with special emphasis upon village Buddhism. His data are more detailed, more precise and more comprehensive than Fraser's, but just as heterogeneous. One single chapter contains sections entitled "Dress", "Diet", "Drinks", "Betel Chewing", "Smoking", "Entertainment", "Games", "Health", "Knowledge of Sanitation" and "Attitudes Concerning Food and Health", "Narcotics", "Preventive Medicine", "Miscellaneous" and "Black Magic". Kaufman calls this "the camera approach", meaning presumably that it records everything that comes within view; he anticipates that some day, as a result of this approach, his monograph "will serve as resource material for comparative studies".

Both books do in fact place useful information on record. The most valuable parts of Fraser's book are his accounts of fishing techniques and of Islam in Rusembilan. Kaufman's description of rice cultivation and his detailed account of the local Buddhist church will also attract attention. In addition, each book places on record a thousand and one minor ethnographic "facts" that may be useful to someone, some day.

MURRAY GROVES

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W. Howard Wriggins, *Ceylon: Dilemmas of a New Nation*, Princeton University Press, Princeton N. J., 1960, pp. xiv, 505, Maps, Bibliography, Index. $10.

This is a good book, thoroughly to be recommended to all those who are concerned with the study of political, social and economic affairs in newly independent and underdeveloped countries, especially those of Southeast Asia. The author, who is chief of the Foreign Affairs Division in the Legislative Reference Service of the Library of Congress, has spent some time in Ceylon and has manifestly got completely to grips with the Island's affairs.

Part I of his book begins by sketching the historical, geographical, social and economic setting of Ceylon politics. Mr Wriggins is particularly and rightly concerned here to examine the social and economic system that provided "the

underlying groups, resentments, and aspirations that give direction and impetus to political activities" (p. 7). This he does with a general sureness of touch which, however, very occasionally falters: for example, malaria is described as formerly endemic over most of the island (p. 52) whereas this is only true of the Dry Zone. Mr Wriggins goes on to describe accurately and succinctly the constitutional evolution of Ceylon under British rule (but there is a curious slip on p. 88, where Ceylon government expenditure on social services is described as "Federal aid"!); and concludes Part I of his book by discussing "The dynamic actors on the political stage": political parties, individuals, and various group interests.

Part II of the book examines five of the fundamental and teasing problems that have afflicted Ceylon since independence. The first of these involves religion and cultural nationalism, two interrelated phenomena whose rise and exploitation had much to do with the success of Mr Bandaranaike in the elections of 1956 and with the ensuing communal tensions. The second problem is that of national unity, which is bound up with the relations between the majority Sinhalese community and the Indian and Ceylon Tamils and in particular the objections of the latter to the language policy of Mr Bandaranaike. In discussing these issues Mr Wriggins is, perhaps, a little too prone to idealise the role of the Buddhist priesthood and of other leaders of the religious and cultural revival: a little too willing, that is, to see their motives as single-mindedly religious and cultural and a little too unwilling to see in these movements the desire of a frustrated group for power and for the economic opportunity of which it thought it had been deprived.

Mr Wriggins then turns to his third problem, that of economic development, which, he emphasises, is inseparable from policy. Resources, natural, financial and human, are adequately surveyed, and successive Government policies are reviewed. The author has clearly mastered a wide range of material, though his grip on agrarian affairs is not quite as tight as one might wish.

Mr Wriggins' fourth problem is that of the practice of democratic elections: he examines the Ceylon general election of 1956 which, for the first time in a newly-independent Asian country, led to a peaceful change of government through the agency of the ballot box. Finally, he discusses Ceylon's search for foreign policy and its relationship to such issues as Asian solidarity. His conclusion attempts to make generalisations from his study of Ceylon about the important characteristics of an Asian polity.

One closes Mr Wriggins' book with a sense of deep admiration for his erudition and for his sympathy with the scene he has been painting; but also, to a much smaller degree, with the feeling that he is, or represents himself to be, a little more the earnest innocent than truth about Ceylon requires.

B. H. FARMER

## "OUR LITTLE LIFE"

Kenelm Burridge, *Mambu: A Melanesian Millennium*, Methuen, London, 1960, pp. xxiii, 296, Illustrations, Index. 42s.

Dr Burridge visited the society of Tangu, in Northern New Guinea, in the early fifties to gather material for a doctoral study. He has now presented us with a perceptive and stimulating book analysing one of the messianic movements known collectively as "cargo cults". Mambu, from whom the book takes its title, was one of the prophets whose ideas were developed by the Tangu people and some of their neighbours.

The literature on cargo cults is now growing apace, and many anthropologists wonder whether anything new can be said about it, unless the examination is

predicated on new data or new methods. Dr Burridge has demonstrated that many of the unsolved questions and fuzzy answers can be approached afresh. Because of the depth at which he penetrated Tangu belief, his abiding yet objective sympathy with the Tangu people, and his personal interest in the ideas and concepts of religious systems, he has been able to present the world view and the ideational system of the Tangu with greater persuasion and authority than has been achieved in recent New Guinea anthropological studies. In reaching this goal he has been able to put aside once and for all some of the old misshapen questions. (Is cargo cult thought rational or irrational? Can a single-cause explanation apply?)

The concept upon which Dr Burridge hangs his analysis is that of the myth-dream, a body of ideas which grows up as a result of numerous perceptual influences, and then serves, in dream-like manner, to embody aspirations and hence to influence action. Certainly, the analysis surrounding this notion, and the data which bear upon it, are full of import; but the idea itself is clumsy, and the extended explanation of it on pages 148-9 is the only incomprehensible section in the book. There are many notions in anthropology which relate to such a concept, and there is a greater need to sort out the existing ones than to introduce novelties. Perhaps it is not a coincidence that Gregory Bateson (*Naven*) made his great contribution in a similar context when considering the motivational and ideational implications of a neighbouring New Guinea ritual.

It might be thought that in such a study the analysis of Western impact upon New Guinea society was marginal, to set the framework. Burridge has made it central, and has given it a new dimension. I doubt if there is as perceptive an account of the relationship between a native people and their European contacts anywhere else in the literature. The discussion here compares more than favourably with O. Mannoni's *Prospero and Caliban.*

The book should be judged on its constructive and creative merits which far outweigh any defects at which I might wish to quibble. Yet in view of the achievement, it is strange to find a number of dissatisfying points, injected or omitted without adequate explanation. There is, for example, no systematic treatment of ritual as such, although I am sure that ritual performed a central function in the movement, and that it must have been highly indicative of states of mind. And the indigenous inhabitants of New Guinea are throughout referred to as "Kanakas". I am sure that if Burridge uses the word it must be free of unworthy implications as used in New Guinea pidgin; but elsewhere in the Pacific memories of black-birders, and of plantation master-servant relationships have irrevocably coloured it. In a book of Pacific significance, the word should not be used. Again, on page 77 and thereafter, the term "manager" refers to the emergent leader. Managers to me are entrepreneurs; almost every Melanesian is in some sense an entrepreneur; no leader can be successful without being an entrepreneur. But Burridge is describing states of prestige and authority, in terms perfectly congruent with the detailed and unchallengeable accounts of Hogbin and Oliver; this is something wider and more significant than management *per se.*

The book is clearly, concisely, and evocatively written. It is a major contribution to Oceanic literature.

CYRIL S. BELSHAW

## O.A.S. OR COMMON MARKET?

F. Benham and H. A. Holley, *A Short Introduction to the Economy of Latin America,* Oxford University Press, London, 1960, pp. 169 and maps. 18s.

During the nineteen fifties Chatham House published a series of monographs dealing with eight of the Latin American republics. The publication of a

companion volume giving a general survey of the economy of the area south of the Rio Grande is to be welcomed. It will form a valuable introduction to the region for those unacquainted with its background, endowment and problems, and it will give a framework in which the reader may assess and pinpoint in its continental significance the detail contained in the volumes on the individual republics.

Two authors are responsible for the book, Professor Benham covering the general economic background and H. A. Holley recent economic trends in the seven more important republics of Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela.

In the first half of the volume, in addition to the factual material on population and resources, some assessment is made of such vital matters as the place of agriculture in the economy, the part played by Latin America's industrialisation, the need for capital and the outlook for exports. Attention is also directed to the effect of changing terms of trade on the region's economy, and the feasibility of the establishment of a common market within the area.

Some of these assessments are remarkably succinct summaries of the economic trend or problem which a newcomer to the Latin American scene will find of great use, although sometimes the tendency to state the viewpoint of the conservative landowner and the foreign banker or investor at the expense of the other side of the picture weakens the objectivity of the presentation. For example, the merits of foreign investment in oil exploitation are given, but the method by which Chile has developed its oil resources from scratch without involving itself in foreign concessions is omitted. Similarly, although the author agrees that "the overall picture of agricultural production in the region is most disquieting" (p. 27), there is not only a reluctance to state the economic motives for agrarian reform, but instead the reader is presented with an itemised recital of reasons why land should not be redistributed. The critical observer is forced to wonder how Mexico's "total agricultural output doubled between 1945 and 1955" (p. 126) in spite of the vast redistribution of land that occurred there!

In like manner everyone would agree with Professor Benham's conclusion (p. 56) that the development of agricultural land, oil or other minerals is preferable to the investment of large sums in industries *for which a country is not naturally suited*. But a great deal of Latin American industrialisation does not fall into this category; and no Latin American economist (with memories of the nineteen thirties) sees much hope in increased agricultural or mineral production which would exacerbate both the problem of commodity surpluses and the reliance of the area on fickle world prices, from which even diversified producers such as Peru as well as "single-export" republics such as Chile have suffered.

Indeed, the second part of the book, dealing with the seven more important republics, has a more objective ring about it. Here we have a series of highly readable critical essays which provide the reader with a splendid summary of the post-war economic history of the major areas of Latin America. They also portray vividly the increasing diversity of development now characteristic of the continent and the trends or requirements of each of the seven republics. Particularly attractive are the diagnostic conclusions such as the need for "the simultaneous expansion of arable and pastoral farming" (p. 100) in Argentina; "Brazil's eventual emergence as a major industrial power" (p. 108); Chile's need for "the development of agriculture and the diversification of the country's export trade" (p. 117); Colombia's "extreme dependence on coffee for foreign-exchange revenue" (p. 124); and Mexico's "best all-round economic progress in Latin America during the past twenty years" (p. 134).

I dislike "overall" and "dieselisation"; and as a geographer, I wonder if the naivety of some of the maps enhances the publication. Surely with the availability of excellent atlas maps covering such aspects as relief and vegetation, more imaginative and illustrative cartographic efforts could have improved the volume.

G. J. BUTLAND

## THE ROOTS OF RACIALISM

*Man, Race and Darwin.* Papers read at a joint conference of the Royal Anthropological Institute of Great Britain and Ireland and the Institute of Race Relations, with an introduction and epilogue by Philip Mason. Oxford University Press, London, 1960, pp. vii, 151. 18s.

This symposium, celebrating the centenary of the publication of Darwin's *Origin of Species,* contains essays on questions of racial differences and conflicts, which are dealt with by specialists from a variety of points of view.

The biological essays, which deal largely with the genetics of those physical characteristics which we call racial, are somewhat difficult to follow for the reader who is untrained in genetics. Their conclusions, though mainly negative, are nevertheless of the greatest importance. Thus in regard to miscegenation, biologists are unable to give any generalised statement as to its effects. They may be advantageous, disadvantageous, or "neutral". This conclusion disposes alike of the myth of the necessarily inferior character of the mixed blood and of the contrary assumption of "hybrid vigour". Again, there is no evidence that the physical features which we call "racial" are in any way correlated with mental capacities or characteristics. If any innate racial differences in intelligence do exist, they are of minimal significance compared with those determined by environmental (and particularly cultural) factors, or with variations *within* racial groups.

Dr Marie Jahoda's psycho-analytical interpretation of race relations, whether it be accepted in its entirety or not, is valuable as stressing the danger of interpreting racial tensions *exclusively* in terms of economic and social factors such as housing shortages, economic competition and alien habits. Of the Notting Hill riots in 1958 she writes: "The nine youths who went on a 'nigger hunt', thus starting the riots, were not suffering from housing shortage or unemployment. The mob who joined in the subsequent violence did not seek out those whose nightly amusements might have kept them awake. . . . The passion of hate which erupted in Notting Hill stemmed from deeper sources" (p. 66). It is indeed impossible to explain in purely economic or social terms the conclusions of Professor Hartley who made a study (in America) of "racial antagonism against three *non-existent* racial groups whom he called the Danireans, the Piraneans and the Wallonians. A large proportion of the people questioned about them disliked them strongly and advocated restrictive measures against them" (p. 68). Racial prejudice is to some extent "free floating" and stems in part from unconscious motives such as those which Dr Jahoda describes. The practical implications of this for the improvement of race relations are of the utmost significance, if somewhat discouraging.

Essays by sociologists and social anthropologists on particular situations of race relations and cultural tension deal with modern Britain (Dr Maurice Freedman), Africa (Dr Lucy Mair) and Asia (Dr Hugh Tinker). Of these perhaps the most significant at the present time is that of Dr Lucy Mair. Though written before the recent bloody happenings in the Congo, this essay reveals them as part of a more general pattern of tensions *between Africans* which are working themselves out less violently in other parts of Africa and are perhaps inseparable from the

movement towards independence, either within the Commonwealth or otherwise. Africans, like everyone else, "cannot tolerate having their lives controlled by outsiders. As long as the outsiders are British, they protest along with their neighbours. But when independence is near, they find that it is not likely to be 'freedom' in the sense of unlimited control of their own destinies. Hence there arise the kind of oppositions I have been describing" (p. 111). And these oppositions are economic as well as political. Thus most people know of the objections of African nationalists in Kenya to the situation in the White Highlands, where Africans are allowed to reside only so long as they work for Europeans. "Such people are in very much the same position as the immigrants into Uganda who work on the coffee or cotton farms of Ganda landowners. The Ganda too want the immigrants to stay in their country only so long as they are working; the Ganda too complain that you can't get a good day's work out of these foreigners; the Ganda too describe the labourers as 'dirty people', 'lazy', 'not really civilized', 'we couldn't let our daughters marry them' " (p. 112). There is a certain chill comfort in reflecting that we Europeans do not possess an exclusive monopoly of exploitation, irrational prejudice and xenophobia.

It is impossible in a short review to do justice to all of the valuable essays contained in this collection. Though none of them deals with the Pacific, they do provide a wide background of fact and criticism to problems which, being world wide, are of vital scientific and practical importance in this part of the world.

RALPH PIDDINGTON

# New Contributors

*A. Grant Anderson,* Lecturer in Geography at the Palmerston North Teachers' Training College, has specialised in the geography of settlement in New Zealand.

*Cyril S. Belshaw,* Professor of Anthropology at the University of British Columbia, is the author of *The Great Village* and *Changing Melanesia.* He is an authority on the economic and social anthropology of Melanesia.

*G. J. Butland,* Professor of Geography at the University of New England, N.S.W., has lived in Latin America for 15 years. His publications include the Chatham House study of Chile, and *Latin America: A Regional Geography* (1960).

*Murray Chapman,* Research Assistant in the School of Social Science at the Victoria University of Wellington, is a geographer who has worked on resource utilisation and demography. He is interested in the Solomon Islands.

*J. Dresch* is Professor of Geography at the Sorbonne and is Editor of the periodical *Annales de Géographie.* His regional interests include Southwest and East Asia and the North African lands. His recent works include *La Méditerranée et le Moyen-Orient* (with P. Birot).

*B. H. Farmer,* Fellow of St. John's College, Cambridge, has specialised in the study of Asian agrarian problems. He is the author of *Pioneer Peasant Colonisation in Ceylon* and numerous articles on the geography of that country.

*Michael Freeberne,* Lecturer in Geography at Victoria University of Wellington, is specialising in the human geography of the Far East. He has spent a year in Hong Kong, and has a knowledge of Mandarin.

*Murray Groves* is Senior Lecturer in Social Anthropology at the University of Auckland, and has worked among the Motu people of Papua and among urban workers in Port Moresby. He is Editor of *The Journal of the Polynesian Society.*

*Kōji Iizuka,* Director of the Institute of Oriental Culture, University of Tokyo, has specialised in the economic and social geography of Japan. He visited New Zealand in 1959.

*Sidney Klein,* spent some time in Japan, Korea and the Philippines during and after World War II. He has written the book *Pattern of Land Tenure Reform in East Asia after World War II,* and numerous papers on economic problems in the Far East.

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*A. C. S. Wright* has undertaken surveys of the soil resources of Chile, Fiji, Samoa and Niue for the respective governments. He has also done work on the geomorphological, soil and agricultural patterns of New Zealand and various Latin American countries.

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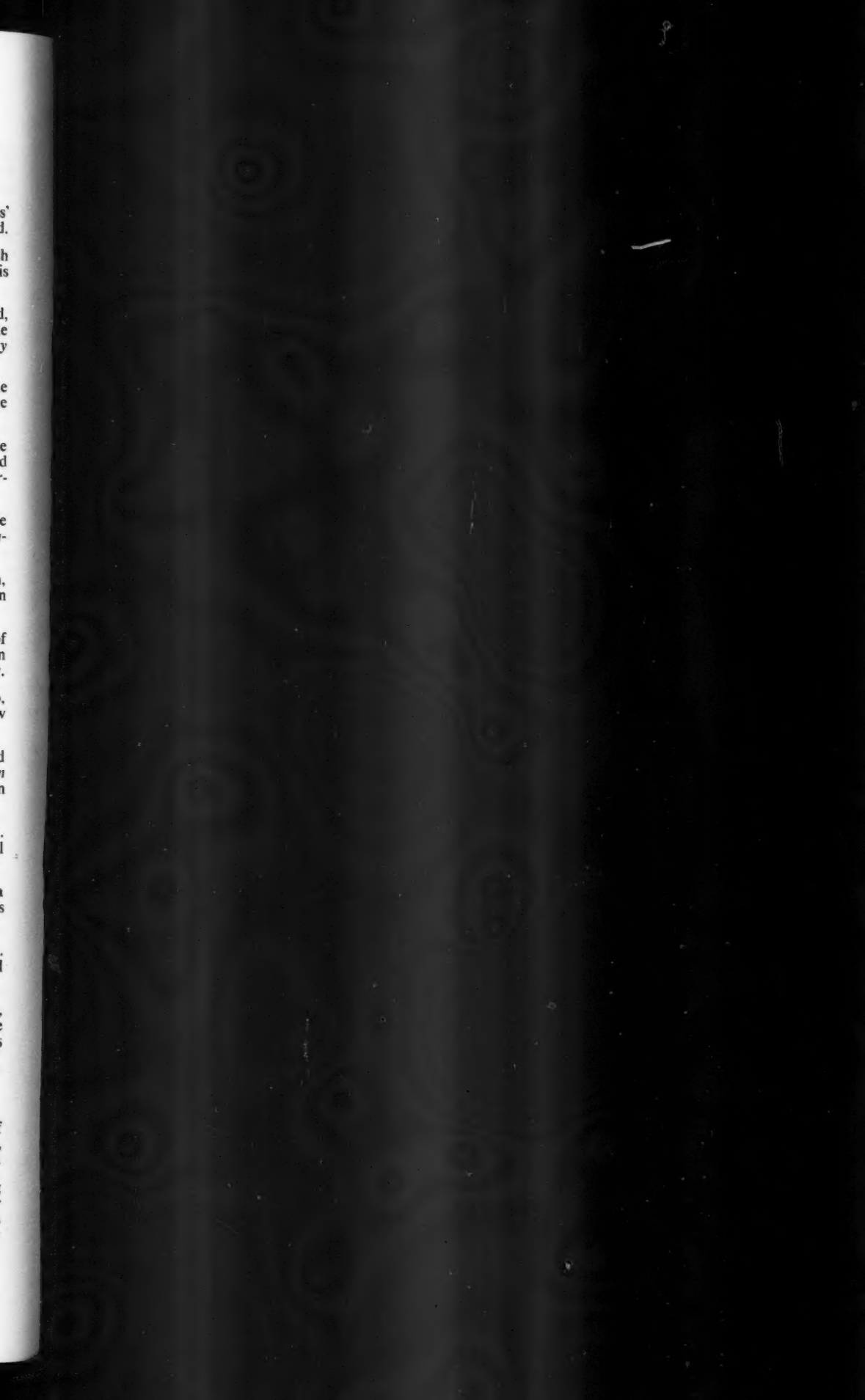
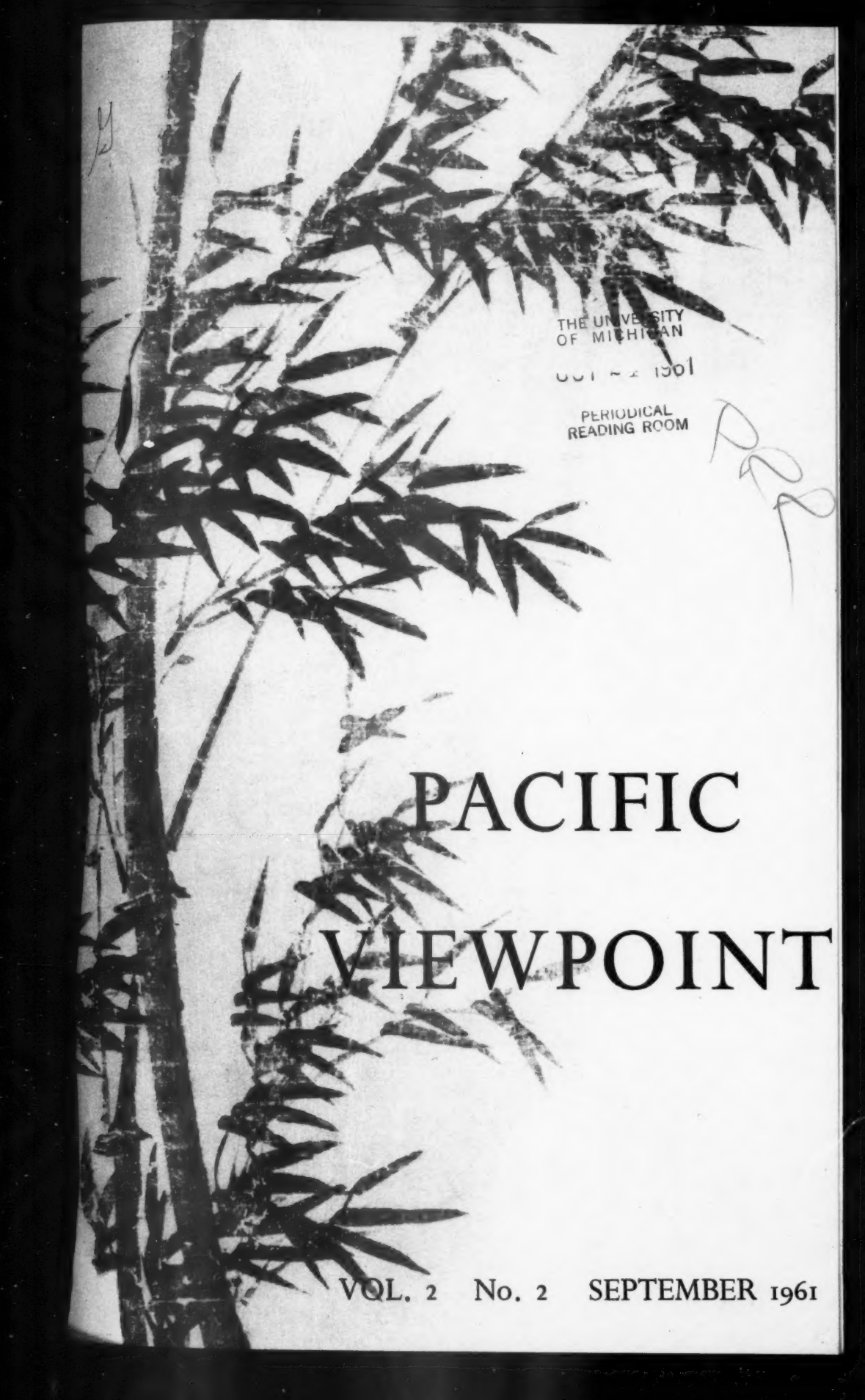
*R. F. Watters,* Senior Lecturer in Geography at the Victoria University of Wellington, and *Ian Pool,* Research Fellow of the Department of Demography, Australian National University, have both contributed to *Pacific Viewpoint* before.

Technical assistance is by Mrs J. Elmes (secretarial), D. Hounsell, M. King and Mrs J. Benfield (photography), Mrs B. M. and Mr D. R. Winchester (cartography) and Thomson Photo Engravers Ltd. Translation assistance has been provided by Miss O. Duncan, Lecturer in French at the Victoria University of Wellington.





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